



Reinvent Veterans Parkway

Our Community Vision

Preliminary Alternatives Analysis Report

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Prepared for the McLean County Regional Planning Commission by TYLin, Chicago, IL



TYLin

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1.0 Introduction

The Preliminary Alternatives Analysis Report is the fifth in a series of project reports and builds upon:

- Current Conditions Report
- Opportunities & Needs Report
- Phase 1-2 Engagement Report
- Corridor Segments Analysis Memo

For additional project context, including objectives, refer to preceding reports. The Preliminary Alternatives Analysis Report summarizes work completed since the Corridor Segments Analysis Memo. This Report is based on several workshops with the Project Steering Committee, which provided feedback on initial alternatives and direction on the contents of this report.

Alternatives Segment Selection

The project scope included a process of identifying corridor segments for design alternative study based on applicability for complete streets design. Three segments were selected between Ireland Grove Road and Shepard Road based on crash history, speeds, volumes, and land use. The full process is summarized in the Corridor Segments Analysis Memo. The project scope then initially included identifying up to two draft design alternatives for each segment. However, subsequent alternative development and analysis revealed substantial overlap between the opportunities and constraints of the three segments. Therefore, the scope was amended to review up to six draft design alternatives across the combined three segments. Figure 1 details the revised Complete Streets Design Alternatives Study Area as well as the broader Network Improvements Study Area.

1.1. Preliminary Alternatives Analysis Components

This report is organized by the following sections, detailing the process of developing design alternatives and assessing the feasibility and impact of those alternatives.

Design Intervention Safety Benefits Overview

An introductory summary is provided detailing the safety benefits of design interventions referenced throughout the report. Additional details are available in the appendix.

Intersection Design Guidance

Corridor-wide intersection design guidance is provided that is intended to apply to any segment design alternative.

Corridor Segment Design Alternatives

Detailed design details and impact analyses are provided for six segment design alternatives. This includes traffic modeling impacts, safety impacts, and cost estimates.

Network Improvement Guidance

General design guidance is provided for pedestrian, bicycle, transit, and roadway network improvements, and a representation of a full build-out of improvements based on the guidance is provided in a series of maps. These maps are then used to measure the access impacts of network improvements. This guidance applies anywhere within a quarter-mile of the centerline of Veterans Parkway.

Additional Feasibility and Impacts Analyses

Additional feasibility and impacts analyses include Local Pollution and GHG Impacts, Disadvantaged Communities Impacts, Land Use and Economic Development Impacts, and Utilities impacts.

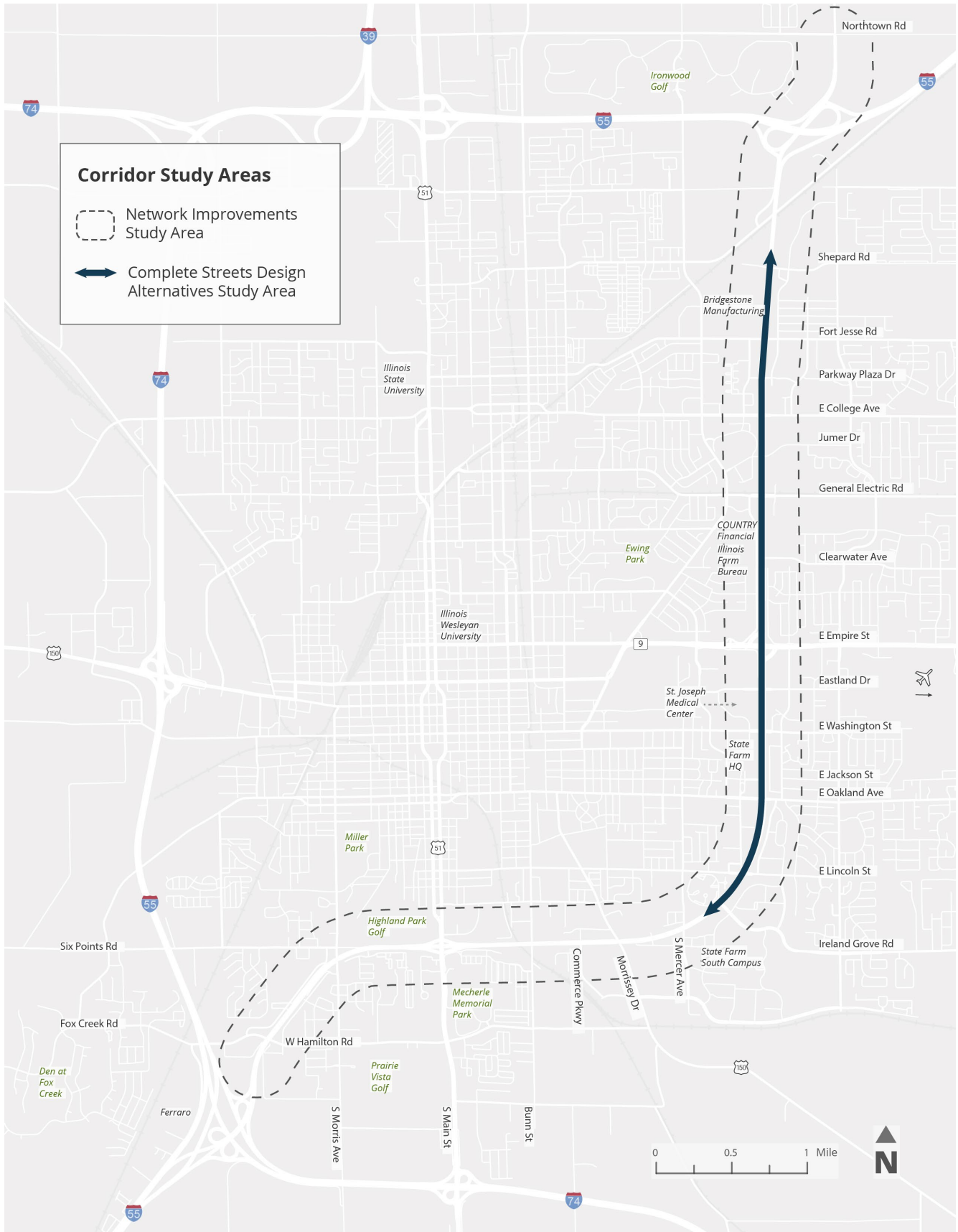


Figure 1: Veterans Parkway Corridor Study Areas

2.0 Design Intervention Safety Benefits Overview

This report proposes a series of design interventions to improve safety for all users of Veterans Parkway as well as other roadways within a quarter-mile of the corridor. The interventions were selected based on their potential to reduce crashes across multiple dimensions of safety – including their impacts on people walking, biking, and driving – with an emphasis on reducing serious injuries and deaths. Each intervention has proven safety benefits based on evidence from FHWA’s [Proven Safety Countermeasures](#), the [Crash Modification Factors \(CMF\) Clearinghouse](#), and additional high-quality research. See Appendix A for citations, additional details on intervention safety research, and further reading.

2.1. Roadway Segment Interventions

Reduce Lane Width

According to a study from Johns Hopkins University, narrower travel lanes can improve safety. Lanes (as low as 9-10 feet in width) were associated with significantly fewer incidences of traffic crashes on urban arterial roads, with 11-foot lanes likely appropriate for freight corridors with speeds over 35mph. Further analysis from the Midwest Research Institute found no evidence that lanes narrower than 12 feet on urban and suburban arterials increase crash frequencies.

Increase Median Width

Roadways with wider medians can experience up to 7.4 percent fewer total crashes and 4 percent fewer fatal and serious crashes compared to roadways with narrower medians.

Add Street Trees

Landscaping and the presence of street trees have been shown to have positive impacts on transportation safety. Researchers mapped Denver’s tree canopy and found that larger canopies were associated with fewer fatal and serious injury crashes, as well as total crashes. The Oregon Department of Transportation points to a potential reduction of 10 percent in crashes of all severities when adding street trees to a roadway, citing safety benefits such as traffic calming due to trees’ effect of narrowing a driver’s visual field and providing distinct roadway edges.

Install Sidewalks

Sidewalks are an FHWA Proven Safety Countermeasure, with demonstrated reductions in crashes involving pedestrians walking along roadways of up to 65 to 89 percent. These findings were based on a study from researchers in Central Florida that found that the likelihood of a pedestrian crash along roadways with no sidewalk is 1.67 times greater than the likelihood of a crash with the presence of a sidewalk.

Install Shared-Use Path

Research indicates that on larger roadways classified as principal arterials, installation of shared use paths can reduce crashes between vehicles and bicycles by 25 percent.

Lower Speed Limit from

Lowering the speed limits has been shown to reduce crashes of all injury types by up to 14.4 percent and reduce fatal and serious injury crashes by up to 30 percent.

Road Diets (Roadway Reconfiguration)

Researchers at the University of California Los Angeles (UCLA) Institute of Transportation Studies compared traffic crashes on five high-traffic, high-volume road diet corridors, seeking to address a gap in the safety literature demonstrating benefits of roadway reconfigurations on larger, more complex corridors. They found that collisions, injuries, and deaths on the road diet corridors were 31.2 percent to 100 percent lower, depending on the measure, and that traffic speeds were between 6.7 percent and 7.9 percent lower.

2.2. Intersection & Crossing Interventions

High-Visibility Crosswalks

High-visibility crosswalks are an FHWA Proven Safety Countermeasure and can reduce pedestrian injury crashes by up to 40 percent.

Reduce Pedestrian Crossing Distance

Narrowing the width of the roadway and reducing pedestrian crossing distance can reduce crashes by 30 percent. One study found that for every 1-foot increase in crossing distance, the probability that a collision occurred increased between 0.8 and 2.1 percent.

Reduce Corner Turning Radii

Reducing the corner radii of right-turning lanes to increase the line of sight of approaching through traffic can reduce all crashes by up to 59 percent and reduce pedestrian crashes by up to 44 percent.

Right-Turn Lanes

According to a study from Purdue University, exclusive right-turn lanes generally reduce crash frequency, especially at intersections with lower speed limits. Their safety impact varies by roadway type, design speed, turn radius, and other local context. While removing right-turn lanes may increase vehicle crashes, reducing pedestrian crossing distances may provide meaningful improvements to safety for people on foot.

Remove Right-Turn Slip Lanes

Research finds that channelized right-turn lanes (also known as slip lanes) increase pedestrian crash risks compared to non-channelized right-turn only lanes and shared right-turn/through lanes – especially during nighttime conditions.

Positive Offset Turn Lanes

Improving left-turn lanes to create a positive offset can reduce all crashes by 33.8 percent and fatal and injurious crashes by 35.6 percent.

Intersection Lighting

Improving lighting at intersections can reduce nighttime vehicle-pedestrian crashes up to 42 percent. Intersection lighting is an FHWA Proven Safety Countermeasure.

Pedestrian Hybrid Beacons

Pedestrian hybrid beacons are traffic control devices designed to help pedestrian safely cross higher-speed roadways at midblock crossings and uncontrolled intersections – they are an FHWA Proven Safety Countermeasure with safety benefits that include up to a 55 percent reduction in pedestrian crashes, 29 percent reduction in total crashes, and 15 percent reduction in serious injury and fatal crashes.

Rectangular Rapid Flashing Beacons (RRFBs)

Rectangular Rapid Flashing Beacons (RRFBs) are an FHWA Proven Safety Countermeasure and can reduce pedestrian crashes up to 47 percent.

2.3. Signal Timing Interventions

Adaptive Signal Control

Adaptive signal control can reduce angle crashes at intersections by 19.3 percent and all crashes by 5.2 percent.

Leading Pedestrian Interval

Leading Pedestrian Intervals (LPIs) are an FHWA Proven Safety Countermeasure. LPIs have been shown to reduce vehicle-pedestrian crashes by 13 percent.

3.0 Intersection Design Guidance

This intersection design guidance is intended to provide high-level guidance that can be applied to any intersection along the corridor, with the goals of improving safety, access, and operations for all users. Some intersections may accommodate all or nearly all guidance, while other intersections might accommodate only some of the elements detailed. This guidance can also be used to improve intersections absent of any corridor segment improvements.

A Note on the Empire Street Intersection

The intersection of Veterans Parkway and Empire Street is a known high-crash intersection. The Illinois Department of Transportation (IDOT) conducted a separate comprehensive study of design alternatives for the intersection in 2020-2021. The scope of this project does not include any additional specific recommendations for this intersection, although guidance in this section may also prove applicable.

3.1. Existing Typical Intersection Overview and Deficiencies

Veterans Parkway intersections from Ireland Grove Drive to Shepard Road feature relatively similar typical conditions:

- Right-turn lanes at all approaches, which facilitate efficient vehicle movement but increase pedestrian crossing distances and risk
- Right-turn slip lanes (channelized turn lanes) with wide radii at all corners which efficiently facilitate large truck turns but allow fast turning speeds for average-sized vehicles and increase pedestrian crossing distances and risk
- Two- to three-stage pedestrian crossings that substantially increase pedestrian travel times

One to four legs without crosswalks, which increases pedestrian travel time and incentivizes crossings at unmarked locations

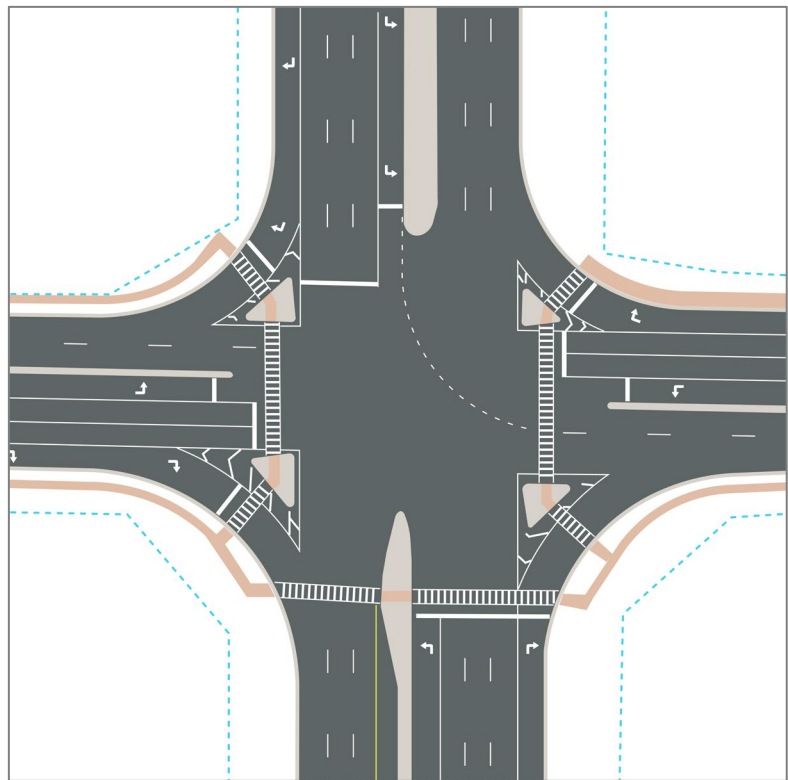


Figure 2: Typical Existing Intersection

Spacing and Access Management

Veterans Parkway is heavily access-managed, with connections almost exclusively at signalized intersections or via ramps at grade-separated intersections. There are no driveways along the corridor.

Existing Level of Service

According to data collected in late 2024, of the 28 signalized intersections along the corridor, 43% experienced a Level of Service (LOS) of A or B during the peak hours assessed. 100% of intersections experienced LOS C or better during the same analysis period. See the Current Conditions Report for more details.

3.2. Intersection Design Guidance: Pedestrian and Bicycle Crossings

Crosswalks on All Intersection Legs

Marking crosswalks on all legs of every signalized intersection can improve access, travel times, and safety for pedestrians. Exceptions apply only in rare circumstances where a crosswalk would provide no utility to a pedestrian traveling the network.

High-Visibility Crosswalks

High-visibility markings, such as continental markings, are considered best practice at every crosswalk location along arterials and collectors. Crosswalks with high-visibility advance yield or stop markings and signs can reduce pedestrian crashes up to 42 percent.¹

Single-Phase Pedestrian Crossing

Timing pedestrian signals so that a user can cross the entire width of a roadway in a single cycle improves access, travel times, comfort, and safety for pedestrians.

Leading Pedestrian Interval

Leading pedestrian intervals (LPIs) provide pedestrians with a walk signal 2 to 3 seconds before vehicles receive a green light, allowing pedestrians to establish a more visible position in the intersection prior to vehicle movements. FHWA advises use at intersections with high turning movements.

Pedestrian-Activated Signals

At crossings with lower pedestrian volumes, push buttons allow pedestrians to activate a crossing signal as needed. User-activated signals can help limit broader impacts to corridor signal phasing while still providing convenient pedestrian access. Buttons must be positioned to be easily accessible to all users. For crossings where the default corresponding vehicle green phase provides enough time for a pedestrian to safely cross or at crossings with high and consistent pedestrian volumes, automatic pedestrian intervals should be utilized.

Automatic Pedestrian Intervals

For crossings where the minimum green phase for vehicles provides sufficient time for a pedestrian to safely cross or at crossings with high and consistent pedestrian volumes, automatic pedestrian intervals should be utilized.

Overpasses or Underpasses

Should not be utilized in lieu of at-grade intersection crosswalks except for high ped/bike capacities or other rare circumstances. Overpasses or underpasses may provide highest benefits midblock or where unique topography presents opportunities.

3.3. Intersection Design Guidance: Minimize Corner Radii

Intersection corner radii should be minimized to induce slower vehicle turning movements, which provide more reaction time to detect and avoid conflicts with pedestrians and cyclists. Turning movements for larger vehicles should be accommodated instead, where possible, by assuming steering into a far lane, which is acceptable per the Illinois Department of Transportation's (IDOT) Bureau of Design and Environment (BDE) Manual as long as the vehicle does not need to oversteer into oncoming traffic lanes and if the turning movement is protected from cross-traffic and left-turning conflicts. In all instances, corner radii should be designed to the tightest standard allowed per design vehicle guidance.

¹ Charlie Zeeger et al., "Development of Crash Modification Factors for Uncontrolled Pedestrian Crossing Treatments," *Transportation Research Record: Journal of the Transportation Research Board* 2636 (2017), <https://doi.org/10.3141/2636-01>.

To better understand potential minimum curb radii dimensions at a typical example Veterans Parkway intersection, the project team modeled several turning scenarios in AutoTURN software. Per the IDOT BDE (36-1.36), turns from an arterial onto an arterial should utilize a WB-65 design vehicle, and turns from an arterial onto a collector or a collector onto an arterial should utilize a WB-55. The diagram below details an example 6-lane Veterans Parkway cross section intersecting an example 4-lane cross-street and features both WB-65 and WB-55 vehicles (to test both arterial-to-arterial and arterial-to-collector situations). Large vehicles are permitted to steer into far lanes to complete a right turn as long as they do not oversteer into oncoming lanes and the right turn is protected from conflicting movements. While radii will be based on actual dimensions for each specific intersection and based on the design alternative utilized, the AutoTURN analysis produced the following example radii considering different functional classifications and design vehicles:²

- 6-lane Veterans Parkway onto Intersecting 4-Lane Arterial (WB-65): 45 feet
- 6-lane Veterans Parkway onto Intersecting 4-Lane Collector (WB-55): 35 feet
- Intersecting 4-Lane Arterial onto 6-lane Veterans Parkway (WB-65): 30 feet
- Intersection 4-Lane Collector onto 6-lane Veterans Parkway (WB-55): 22 feet

As this analysis demonstrates, utilizing far-lane steering for large vehicles (which account for a relatively small share of corridor vehicles) allows for substantially reduced radii, which can result in substantial safety benefits by reducing pedestrian crossing distances and keeping turning movements for all vehicles at a safe speed.

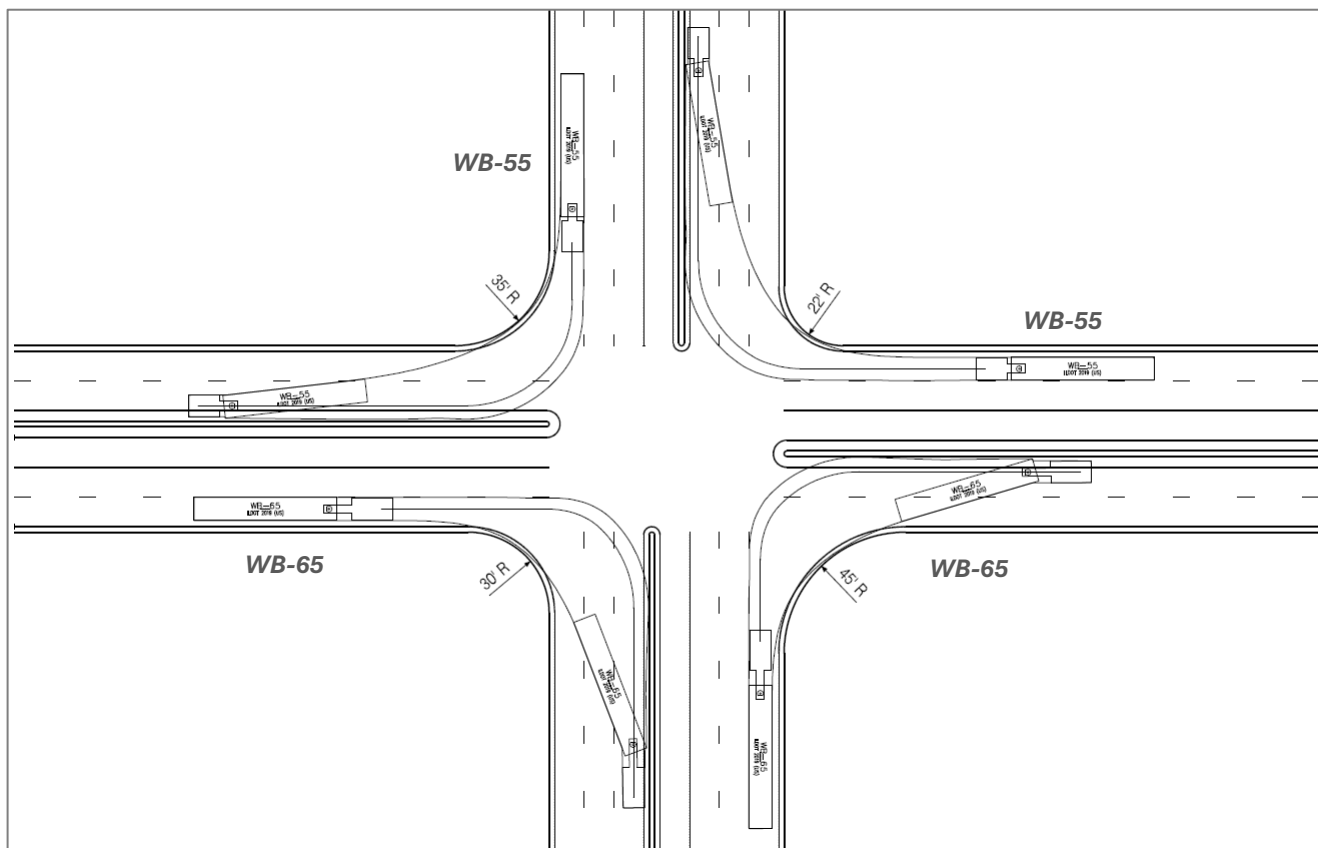


Figure 3: AutoTURN Design Vehicle Modeling Analysis

² Curb radii are likely to be impacted by the total number of lanes. For instance, a four-lane Veterans Parkway cross section may require wider turning radii.

3.4. Intersection Design Guidance: Turn Lanes

Channelized Right-Turn Lanes

A channelized right-turn lane is a dedicated turn lane that is physically separated from an adjacent through lane, typically through the use of curbed islands. Channelized right-turn lanes should be utilized only when large truck movements are to be accommodated and corner radii cannot be minimized due to limitations on oversteering. When utilized, channelized right-turn lanes should be designed to minimize the width to the extent allowed by design standards and with the tightest corner radii allowed. Crosswalks should cross channelized right-turn lanes at a 90-degree angle. Right-turning traffic should have a red right-turn arrow whenever pedestrians have a signal to cross a channelized right-turn lane, and “No Turn on Red” signage should be posted. The removal of existing channelized right-turn lanes could provide pedestrian safety benefits by reducing crossing distance and complexity and by slowing right-turning vehicles.

Dedicated Right-Turn Lanes

Existing right-turn lanes should be evaluated on a case-by-case basis based on factors including BDE Manual warrant considerations, vehicular delay, and queuing, among others. The removal of existing dedicated right-turn lanes could provide a pedestrian safety benefit by reducing crossing distances.

Left-Turn Lanes

Existing dual left-turn lanes within the study area should be evaluated based on BDE volume warrant criteria (>300 left turns per hour), traffic operations, and queuing. The reduction of dual left-turn lanes to single left-turn lanes could provide pedestrian safety benefits including decreased crossing distances.

Parallel or Positive Offset Left-Turn Lanes

A parallel or positive offset design should be utilized for left-turn lanes in situations where unprotected left turns are allowed. Parallel or positive offset design may also provide some visibility benefits even in situations of protected left turns, although any impacts on wider median requirements should be weighed against longer pedestrian crossings distances.

3.5. Intersection Design Guidance: Vehicle Signals

Off-Peak Signal Timing

During peak periods, the entirety of the Veterans Parkway corridor runs in coordination to prioritize vehicular through movements between the I-55 junctions. This configuration maximizes green time on Veterans Parkway, reducing available time for intersecting side streets and pedestrian crossings across the corridor. Outside of peak hours, much of the corridor remains in coordination throughout daytime hours. Depending on location, time, and interest, consideration could be given to shifting signal timing during off-peak hours to more evenly prioritize side street or pedestrian timings relative to Veterans Parkway.

Signal Technology

The Veterans Parkway corridor currently features a variety of signal technology infrastructure, including some form of vehicle detection at all signalized intersections, IDOT-owned fiber connectivity throughout the corridor, intermittent emergency pre-emption detectors, and video monitoring equipment at key locations. Based on the corridor’s existing capabilities, real-time traffic volume monitoring technology could be considered for implementation in the future. In addition to providing current traffic data, such a system could allow for adaptive signal control and improved signal efficiency during peak hours and throughout the entire day. Longer-term signal upgrades could include infrastructure-to-vehicle connected technologies that would provide drivers with real-time roadway information.

3.6. Intersection Design Guidance: Local Roads

Mark All Continuous Paths

Wherever a sidewalk or a trail intersects a perpendicular roadway, a painted crosswalk should be installed that marks the path of travel across the intersecting roadway. Exceptions include when there is no sidewalk, trail, or bus stop on the other side of the roadway or where it would establish more than two crosswalks crossing the same street within 300 feet of each other.

Crosswalk Marking Type

High-visibility crosswalks should be utilized at all intersections featuring a collector or arterial, at local street intersections with higher volumes, and near schools and parks. Simplified parallel-bar crosswalks may be utilized at other intersections. High-visibility crosswalks should be utilized at all mid-block crossings.

3.7. Intersection Design Guidance Feasibility and Impacts Analysis

Figure 4 demonstrates a hypothetical post-intervention design of a typical example corridor intersection that maximizes the incorporation of design guidance. This figure is for demonstration purposes only.

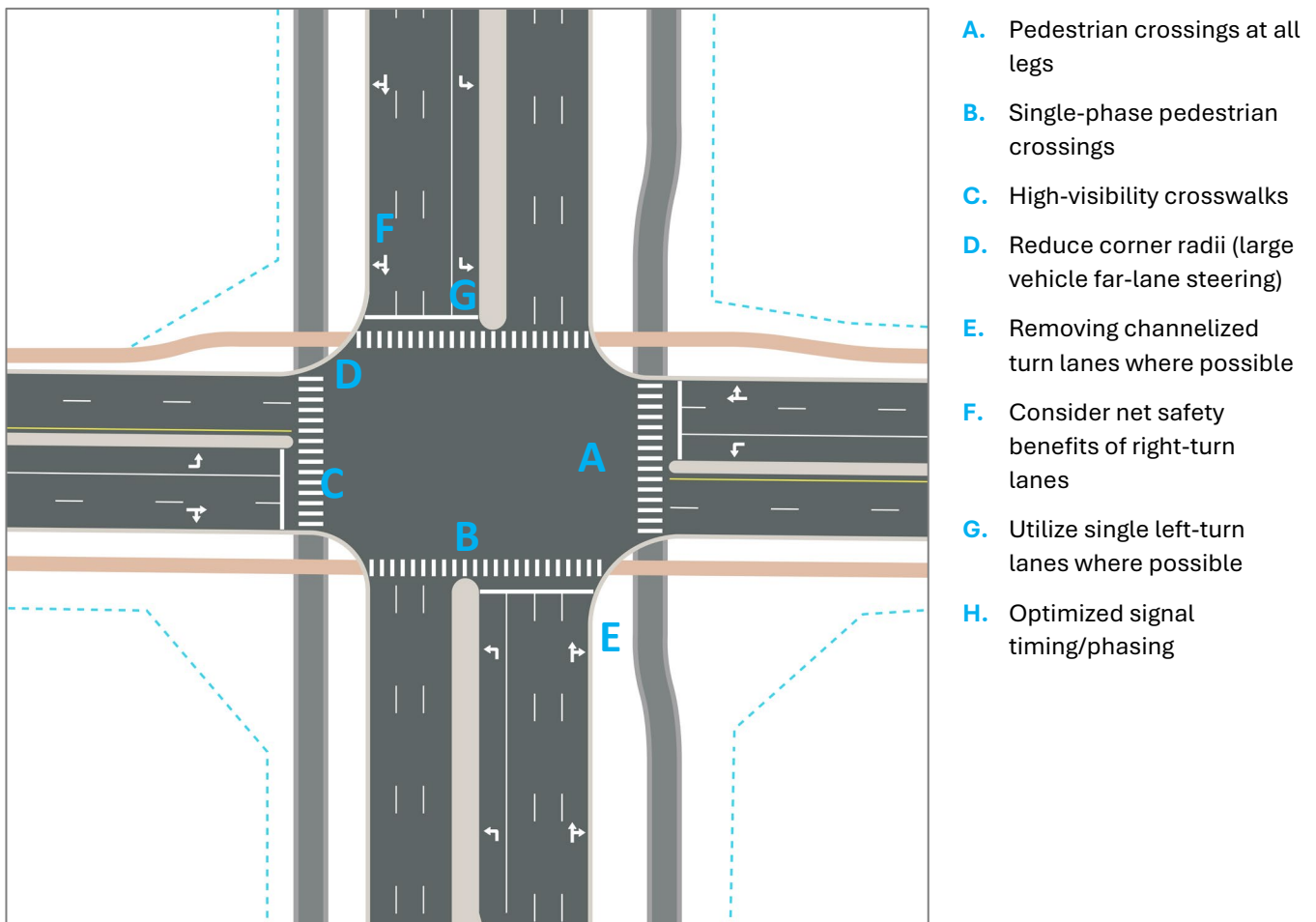


Figure 4: Example Typical Intersection Post-Intervention

Pedestrian, Bicycle, and Transit User Safety and Access Impacts

See Section 2.2 for a more detailed overview of intersection design intervention safety benefits. Additional benefits for people walking, cycling, and using transit include:

- Up to 27 percent shorter pedestrian and cyclist crossings across Veterans Parkway
- Up to 52 percent shorter pedestrian and cyclist crossings across side streets
- Reduced pedestrian travel times, including increased access to and from transit stops

Drivers Safety and Access Impacts

See Section 2.2 for a more detailed overview of intersection design intervention safety benefits. Intersection design guidance focuses both on safety and maintaining efficient vehicle operations. Most safety benefits are derived from interventions that help maintain safe vehicle speeds traveling through and turning within intersections. Therefore, most travel time impacts are expected to result from a reduction in dangerous high-speed activity. The need for right-turn lanes should be carefully evaluated to balance the net safety impacts to drivers and pedestrians.

4.0 Corridor Segment Design Alternatives

4.1. Design Alternative Process

Initial Corridor Segment Design Concepts

Based on existing conditions data as well as previous feedback from community engagement and the Project Steering Committee, the project team developed 14 initial design alternatives aimed at achieving safety, operations, access, land use, and aesthetic outcomes. The goal of these initial design alternatives was to surface creative ideas and capture a full spectrum of concepts that could be applied to the corridor. Some corridor ideas provided by the community—such as light rail running down the corridor—were deemed infeasible or impractical and not advanced to design alternative development. The 14 initial design alternatives were then presented to the Project Steering Committee at an in-person workshop in June 2025, where the project team collected feedback on challenges, opportunities, and additional ideas.

The initial 14 design alternatives are shown below, with full-size graphics and additional details in Appendix B.

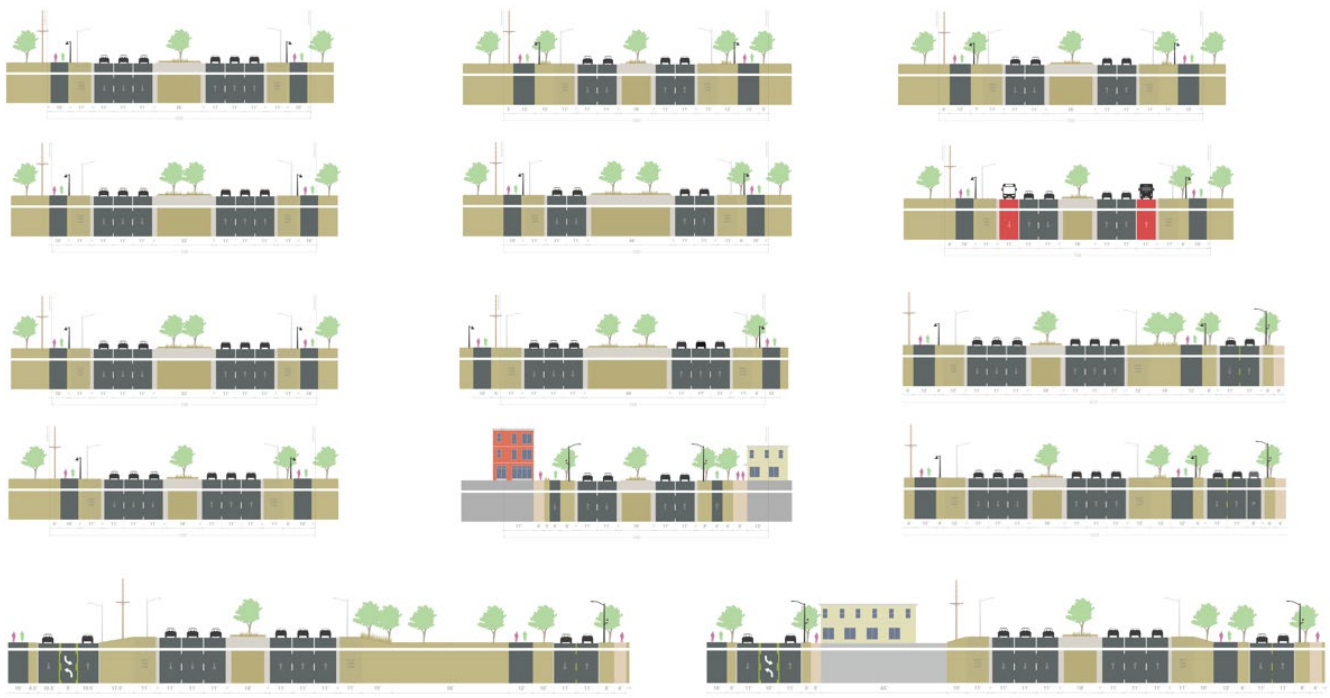


Figure 5: Initial 14 Design Alternatives Presented to the Project Steering Committee

When developing and refining design alternatives, the project team identified the following key features that addressed community feedback:

- **Lane Width:** Can impact speeding and pedestrian crossing distances
- **Number of Lanes:** Can impact pedestrian crossing distance and pedestrian crossing signal phasing
- **Median Width:** Can impact speeding, pedestrian crossing experience, and landscaping opportunities
- **Side Paths:** Can improve accessibility and safety for people walking, cycling, and taking transit
- **Landscaping:** Can enhance corridor aesthetics, impact speeding, and enhance pedestrian experience

Project Steering Committee Feedback

Key feedback on initial design alternatives from the Project Steering Committee included:

- Concern that narrower lane width impacts the accommodation of heavier truck traffic.
- Concern that reducing the number of lanes will impact businesses, surrounding roads, and travel times.
- Narrower medians reduce overall crossing distance and open more edge opportunities. Wider medians would be “wasted space” and could increase landscaping maintenance costs.
- Shared-use paths should primarily serve a mobility function (over recreation). The Project Steering Committee expressed concern about the separation between shared-use paths and vehicle traffic.
- Landscaping and aesthetics are important, but safety should be priority and increased maintenance costs should be considered as well.
- Bus lanes are likely not needed, but bus lay-by bays should be explored for potential future bus stops along Veterans Parkway.
- Concern that the urban boulevard concept would cause substantial traffic diversions.
- Park space adjacent to the corridor may not be very comfortable space for people.

Refined Alternatives

Based on Project Steering Committee feedback, but project team developed six refined design alternatives:

- 3 lanes in each direction, narrow (18-foot) median, shared-use path on both sides
- 3 lanes in each direction, narrow (18-foot) median, shared-use path on one side
- 3 lanes in each direction, wider (30-foot) median, shared-use path on one side
- 2 lanes in each direction, narrow (18-foot) median, shared-use path on both sides
- 2 lanes in each direction, narrow (18-foot) median, shared-use path on one side
- 2 lanes in each direction, wider (30-foot) median, shared-use path on one side

Median widths were based on IDOT requirements for minimum median widths to accommodate single and dual left-turn lanes.

Further Refined Alternatives

Upon reviewing the refined alternatives, the Project Steering Committee shared feedback that for a corridor as wide as Veterans Parkway, shared-use paths would be important on both sides to provide sufficient pedestrian and cyclist access. It was agreed that all future concepts should include shared-use paths on both sides.

Additionally, the design alternative featuring three lanes in each direction and a wide median proved ultimately only six feet narrower than the existing typical cross section but would require full reconstruction of the corridor. Therefore, the concept was refined to feature a slightly wider median while keeping existing outside curbs in place.

Finally, as the project team began advancing impact analyses, it became apparent that the design alternatives did not feature substantial differences in estimated costs. Further, the safety analysis indicated disproportionate safety benefits for intersection interventions. In order to introduce an alternative with a substantial cost difference, while still providing meaningful safety improvements, the project team proposed a new alternative focused on improving intersections and adding shared-use paths while otherwise largely maintaining existing corridor segments.

These refinements ultimately produced the set of six preliminary corridor segments design alternatives as detailed in Sections 4.4-4.9.

4.2. Segment Design Guidance

Design alternatives were developed using the guidance of the IDOT Bureau of Design and Environmental (BDE) Manual, per the latest revised version available on the IDOT website as well as established guidance from the National Association of City Transportation Officials (NACTO) and the American Association of State Highway and Transportation Officials (AASHTO). Key BDE guidance includes:

Table 1: Summary of Bureau of Design and Environment (BDE) Manual Design Guidance

Topic	Guidance
Lane Width ³	Accepted: 11'
Raised Median Width	Min. 18-30' (depending on number of turn lanes), includes curb gutters
Side Paths	Recommended 10' wide with 2' shoulders
Side Path Buffer	Min. 5' or physical barrier
Landscaping	Maintain clear intersection sight lines; Min. 1.5' from curb face

4.3. Overview: Design Alternative Traffic Operational Impact Modeling

Additional traffic operational impact details are available within the overview of each alternative, sections 4.4-4.9.

To evaluate future intersection operations for each design alternative, traffic volumes were forecasted for a design year of 2045. Future traffic forecasting was based on background traffic growth. Based on the resulting projections, capacity analyses were prepared to evaluate future operational conditions assuming the implementation of recommended modifications under multiple alternatives. A “No-Build” alternative was also assessed to establish a future baseline for comparison that does not include any design changes to the corridor. The methodologies utilized to model future traffic operations are detailed below and within subsequent design alternatives.

In total, three models were developed to evaluate the impacts of each design alternative:

Table 2: Traffic Operational Impact Models

Name	Description	Applicable Alternatives
Model 1	No design changes + 2045 traffic projections	No-Build
Model 2	6-lanes + intersection modifications + 2045 traffic projections	A1, A2, C
Model 3	4-lanes + intersection modifications + 2045 traffic projections	B1, B2

Future Traffic Projections

In order to estimate traffic for the future design horizons, Average Daily Traffic (ADT) projections were obtained from the Illinois Statewide Travel Demand Model (ILSTDm). As the furthest year with projections available in the model, 2045 was selected as the future design horizon.

ADT projections were provided for two future scenarios. First, all models included modifications to background traffic based only on expected changes to population and employment and maintained existing roadway geometry.

³ The AASHTO *Green Book* advises that lane widths may vary from 10 to 12 feet on urban arterials. The NACTO *Urban Street Design Guide* advises that lanes greater than 11 feet should not be used as they may cause unintended speeding.

The resulting volumes were assumed to represent alternatives that did not include lane reductions on Veterans Parkway (Alternatives A1, A2, C, No-Build). The projected increases in daily traffic relative to existing conditions are summarized within each design alternative.

The second scenario included the same baseline assumptions regarding population and employment but also assumed a lane reduction from three lanes per direction to two lanes per direction on Veterans Parkway (Alternatives B1 and B2). To account for the reduction in capacity on Veterans Parkway, the ILSTDM redistributed traffic to other area roadways, balancing desired driver origins/destinations and roadway capacity. This scenario's volume projections represent alternatives that include lane reduction on Veterans Parkway. The projected increases in daily traffic relative to existing conditions are summarized in Alternatives B1 and B2.

It should be noted that the ILSTDM is a travel demand model designed for projecting daily traffic patterns across the entirety of the state. The analysis conducted to translate the model's outputs into peak hour volumes within the study area is documented in the Technical Appendix. The resulting background growth volumes were added to existing peak hour volumes to yield future 2045 projections.

Future Intersection Modifications

As noted previously in this report, providing adequate crossing time and reducing crossing distances for pedestrians at intersections are key safety benefits regardless of alternative. These modifications are expected to have impacts on vehicular operations, as they directly influence intersection capacity. The modeling assumptions incorporated into the future alternatives (excluding the No-Build condition) to assess these impacts are detailed below.

Intersection Geometry

Pedestrian crossing distances were reduced through several modifications including lane width reductions, the removal of channelized right-turn islands, and the removal of dedicated turn lanes. Under Alternatives B1 and B2, full lane reduction was also applied as a strategy. All lanes under future alternatives analysis were assumed to be narrowed to 11 feet wide, including lanes on side street approaches. Additionally, all channelized right-turns were assumed to be converted to conventional configurations outside of the Empire Street intersection.

Dedicated right-turn lanes were removed where feasible under all alternatives. Chapter 36-3.01(a) of the BDE Manual states several factors for implementing a dedicated right-turn lane including considerations of traffic volumes, LOS criteria, uniformity of intersection design along the highway, and crash experience/sight distance. In assessing the viability of removing a dedicated right-turn lane, the benefits of a reduced crossing distance were weighed against the modeled impacts to vehicular delay and queuing. The potential reduction of dual left-turn lanes to a single dedicated left-turn lane was also assessed as a part of future alternatives analysis, considering the same criteria. More detailed summaries of assumed turn-lane reductions are included later in this report.

Intersection Signal Timings

Intersection signal timings under future alternatives were adjusted to allow for single-phase pedestrian crossings across all intersection legs. Based on guidance provided in the [Manual on Uniform Traffic Control Devices \(MUTCD\)](#), pedestrian signal timings were set based on a 7-second dedicated walk interval plus a "Flash Don't Walk" clearance interval assuming a walking speed of 3.5 feet per second. It should be noted that this assumption may be considered conservative, as the MUTCD also stipulates that a dedicated walk interval may be reduced to as low as 4 seconds if pedestrian volumes and characteristics do not require 7 seconds. Crossing distances were calculated

Traffic Volumes and Population Projections

IDOT's statewide model has a built-in assumption of a 16.7 percent population increase in McLean County between 2025-2045. However, the Bloomington-Normal Metropolitan Long-Range Transportation Plan 2050 document published in 2022 projects countywide population decline between 4.1 percent and 14.8 percent by 2050. For this reason, traffic impact modeling results should be considered potentially highly conservative.

assuming 11-foot-wide travel lanes, a median wide enough to accommodate dual left-turn lanes (30 feet), and 3 to 6 feet of radius return distance on each side of the roadway. Pedestrian phases were assumed to be push-button activated.

Signal phasing at study intersections was adjusted to allow for pedestrian phases as described in the previous section. Signal timing splits and offsets were further adjusted to optimize vehicular operations and corridor progression within the study segment. It should be noted that the study segment's 140-second cycle length was maintained under all future conditions analyses.

Future Capacity Analysis

Capacity analyses were conducted using Synchro 12 software to assess future traffic operations during the weekday morning and evening peak hours for the discussed alternative conditions. Synchro's SimTraffic module was also utilized to assess corridor progression and the impact of intersection queuing on adjacent intersections. Detailed capacity analysis results are included under alternative analyses sections later in this report.

4.4. No-Build Alternative Conditions

Under No-Build conditions, the geometric design and regulation of the roadway would remain unchanged relative to existing conditions. Available public right-of-way would vary across the corridor from 150 to 300 feet. Renderings in this document show an example typical right-of-way. Reference the Current Conditions Report for additional details on existing roadway characteristics.

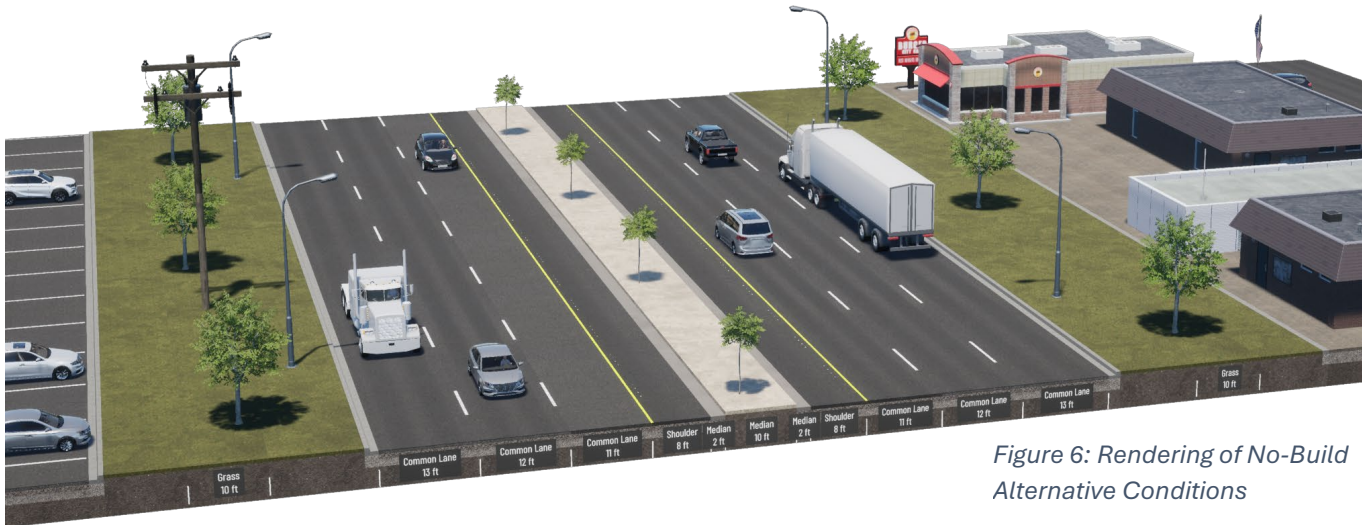
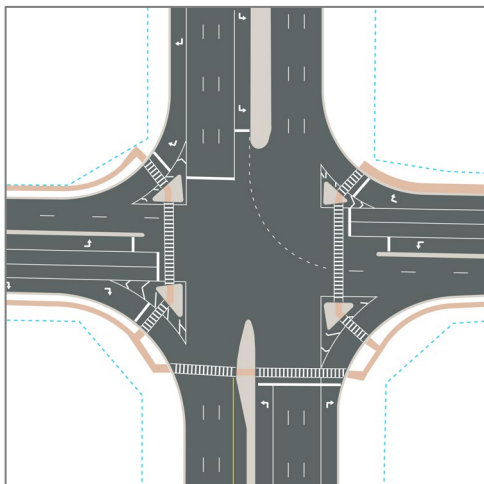


Figure 6: Rendering of No-Build Alternative Conditions

Features

Number of Lanes	3 in each direction
Lane Width	11-13 feet
Median Width	10 feet + 8-foot paved shoulders
Shared-Use Paths	None
Landscaping	Sporadic edge plantings; Small numbers of median trees
Lighting	Standard highway lighting

Intersection Design



Veterans Parkway intersections from Ireland Grove Drive to Shepard Road feature relatively similar typical conditions:

- Right-turn lanes at all approaches
- Right-turn slip lanes (channelized turn lanes) at all corners
- Large corner turning radii
- Lengthy two-to-three-stage pedestrian crossings
- One to four legs without marked crosswalks

Traffic Operations Impact Modeling

Even if no modifications to the corridor are implemented as a result of this project, changes in traffic volumes and operations can be expected in future years relative to existing conditions. To quantify expected changes independent of project impacts, a No-Build alternative was modeled. Detailed modeling was performed in Synchro/SimTraffic capacity analysis software referencing an IDOT travel demand model. The modeling process is detailed below.

Future Traffic Projections

To evaluate future intersection operations, Average Daily Traffic projections were obtained from the Illinois Statewide Travel Demand Model. As the furthest year with projections available in the model, 2045 was selected as the future design horizon. Modeling included modifications to background traffic based on expected changes in population and employment.⁴ The model projects an average 14 percent increase in traffic growth on Veterans Parkway regardless of any future intervention. The projected increases in daily traffic in 2045 relative to 2025 are summarized in Figure 7.

It should be noted that the ILSTDM is a travel demand model designed for projecting daily traffic patterns across the entirety of the state. The analysis conducted to translate the model's outputs into peak hour volumes within the study area is documented in the Technical Appendix.

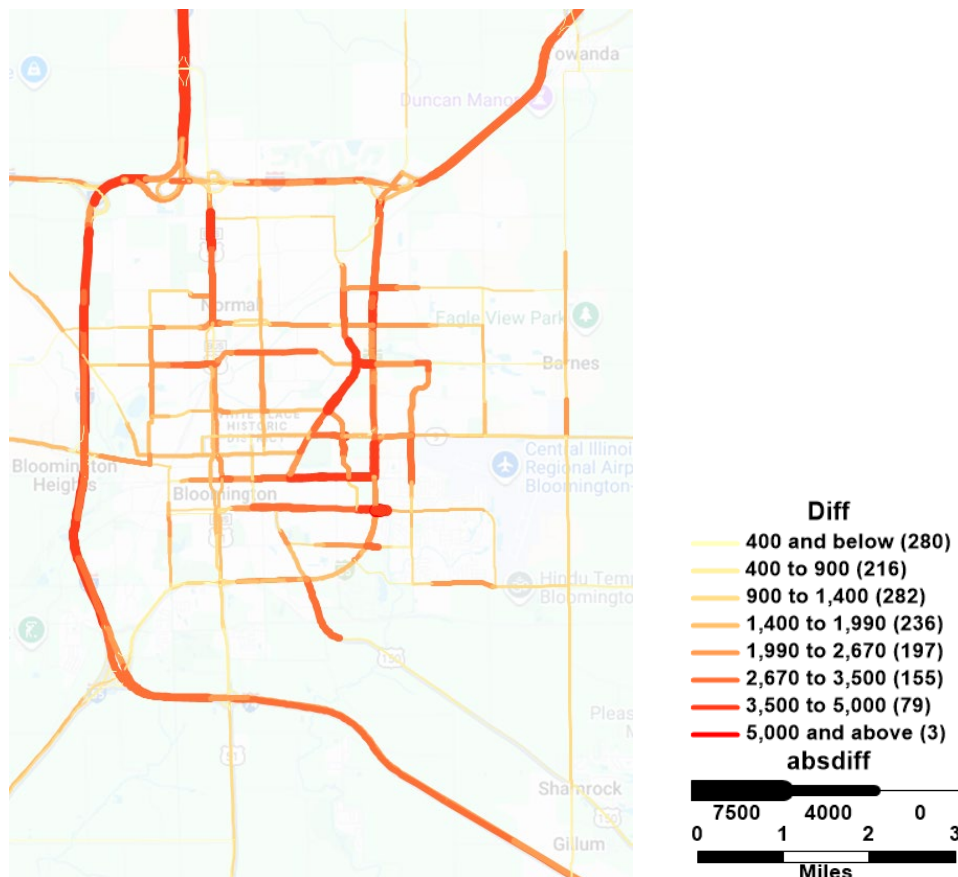


Figure 7: 2045 Average Daily Traffic (ADT) Projections for No-Build Alternative

⁴ IDOT's statewide model has a built-in assumption of a 16.7 percent population increase in McLean County between 2025-20245. However, the Bloomington-Normal Metropolitan Long-Range Transportation Plan 2050 document published in 2022 projects countywide population decline between 4.1 percent and 14.8 percent by 2050. For this reason, traffic impact modeling results should be considered potentially highly conservative.

Future Intersection Modifications

The No-Build model is intended to quantify future traffic operations, assuming only modifications that would be implemented independent of the outcome of this study. As previously noted, this included no geometric modifications. Based on the assumption that corridor retiming would occur within the 2045 design horizon, morning and evening peak hour signal timings were updated to optimize phasing and corridor progression taking into account changes in traffic volumes. No changes were made to the subject segment’s 140-second cycle length during either peak hour.

Future Capacity Analysis

Based on volume projections and intersection signal timing modifications, capacity analyses were prepared to evaluate future operational conditions. A capacity analysis was conducted using Synchro 12 software to assess future traffic operations during the weekday morning and evening peak hours. Synchro’s SimTraffic module was also utilized to assess corridor progression and the impact of intersection queuing on adjacent intersections. Figure 8 details overall intersection LOS for the No-Build alternative. As shown, no intersection is expected to operate at worse than overall LOS D during either peak hour, with three intersections expected to operate at LOS D during the evening peak hour. The vast majority of intersections are expected to operate at overall LOS C or better. As in the existing condition, high LOS results generally reflect the averaging of lower levels of delay for through traffic on Veterans Parkway and higher levels of delay for minor-leg and left-turn movements, including at-capacity (LOS E) and over-capacity (LOS F) approaches and lane groups. Table 3 summarizes the prevalence of at-capacity and over-capacity lane groups under No-Build conditions during the peak hours.

Table 3: No-Build LOS by Movement Type

	Number of Movements					
	AM Peak Hour			PM Peak Hour		
	LOS A – D	LOS E	LOS F	LOS A – D	LOS E	LOS F
Veterans Parkway Through Movements	32	–	–	32	–	–
Side-Street Through Movements	4	18	–	3	18	1
Left-Turn Movements	11	34	5	15	27	8

It should be noted that these results are generally consistent with existing conditions, and are partially attributable to the corridor’s timing plan, which prioritizes maximizing throughput and minimizing stops on Veterans Parkway. Higher delay for minor-leg and left-turn movements is also partially attributable to long cycle lengths. Despite high levels of delay, left-turn movements on Veterans Parkway typically provide lengthy storage bays that are projected to accommodate 95th percentile queues, with few exceptions⁵. Similarly, through movements on Veterans Parkway are projected to be accommodated without extending to upstream intersections. Side-street through- and left-turn movements are more likely to exceed available storage capacity than movements on Veterans Parkway, as in the existing condition. Full LOS tables and the accompanying Synchro worksheets are included in the Appendix.

Travel Time Impacts

To estimate the impact of background traffic growth and signal timing changes to travel times through the Study Segment, Synchro’s SimTraffic module was utilized. SimTraffic models a corridor segment in its entirety, taking into account vehicle progression and the effect of queuing on adjacent intersections. Based on the results of this analysis, travel times in the study segment (Shepherd Road – Ireland Grove Road) are expected to increase by between approximately 0.4 to 3.6 minutes relative to existing conditions depending on direction and time of day. Increases in expected travel times are projected to be largest when traffic volumes are currently highest in the

⁵ Southbound left-turn from Veterans Parkway to Oakland Avenue, PM peak hour

evening peak hour, including 3.6 and 1.4 minute increases in the northbound and southbound directions, respectively. In the morning peak hour, when traffic volumes are lower, northbound and southbound increases in travel time are projected to be 0.4 and 0.8 minutes relative to existing conditions. A comparison of travel times between existing and No-Build conditions is shown in Figure 9.

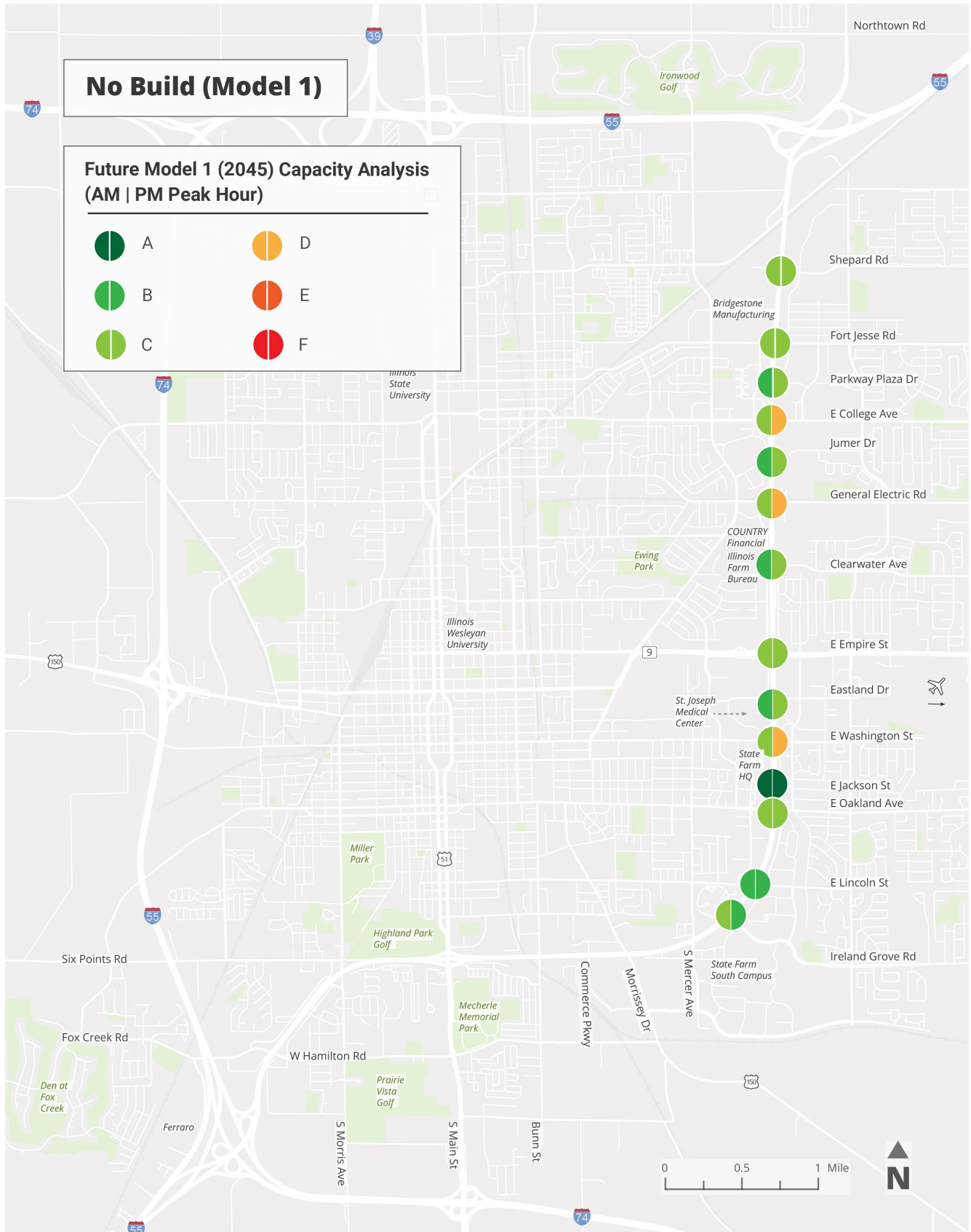
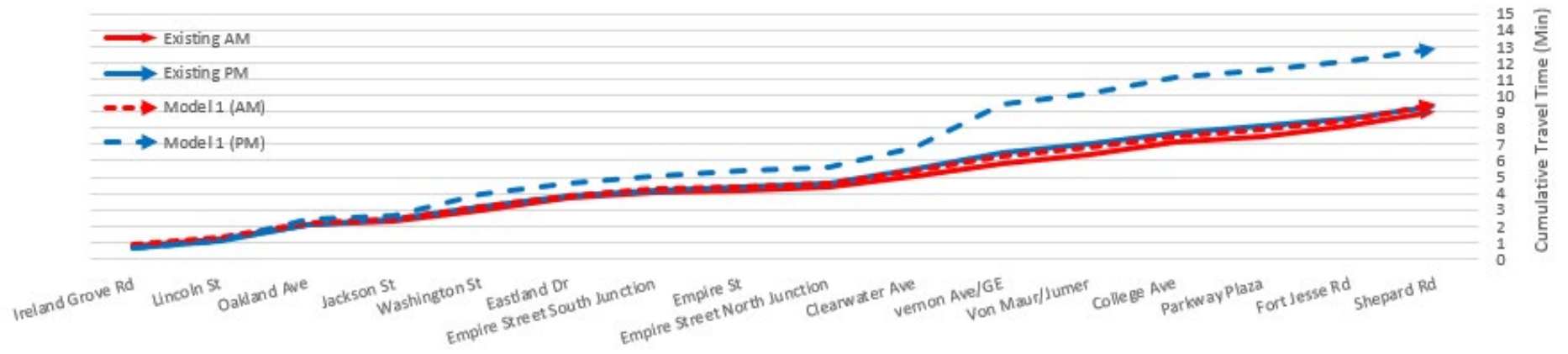


Figure 8: Future Model 1 (2045) Overall Intersection Level-of-Service Results

Veterans Parkway Travel Time (Northbound)



Veterans Parkway Travel Time (Southbound)

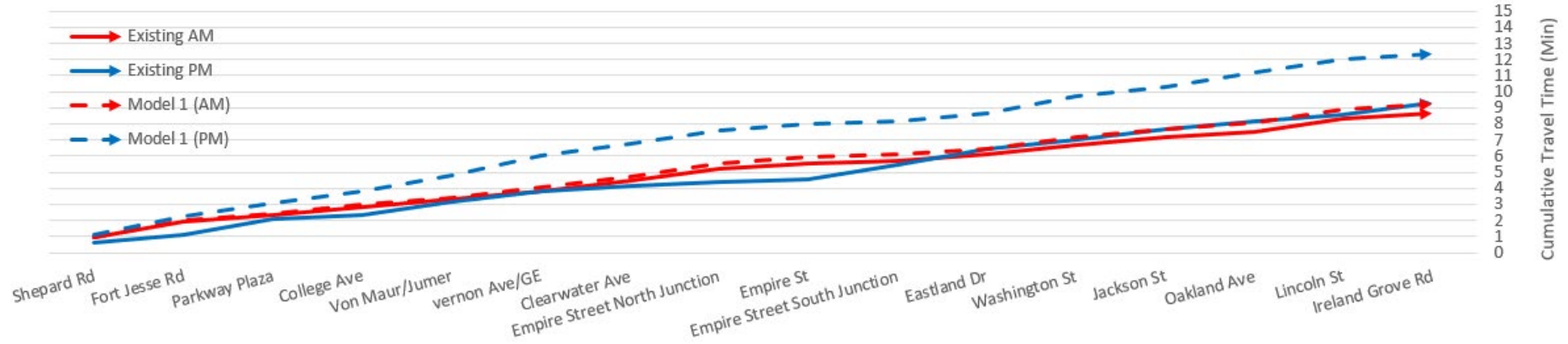


Figure 9: Travel Time Projections: No-Build Alternative (Model 1)

4.5. Alternative A1: Six-Lane Upgrade

Alternative A1 maintains the existing number of travel lanes while right-sizing travel lane width, widening the median, and adding pedestrian and bicycle shared-use pathways on both sides. On a corridor as wide as Veterans Parkway, installing shared-use paths on both sides provides important pedestrian and bicycle network access benefits. Alternative A1 maintains outside curb locations as a cost efficiency effort, resulting in a median that is 6 feet wider than IDOT minimum requirements for a median with dual left-turn lanes.

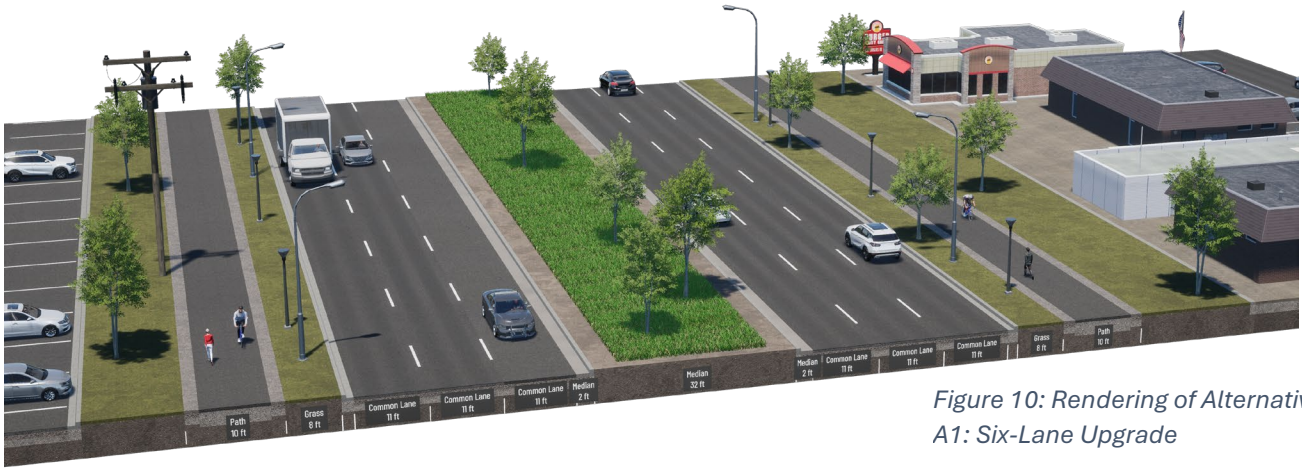


Figure 10: Rendering of Alternative A1: Six-Lane Upgrade

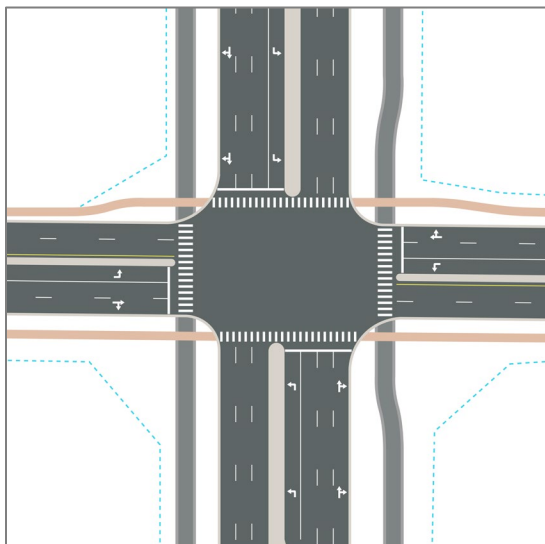
Features

Number of Lanes	3 in each direction
Lane Width	11 feet
Raised Median Width	32 feet (36 feet including curb gutters)
Shared-Use Paths	10 feet wide, both sides
Shared-Use Path Buffer	5 feet minimum
Landscaping	Increased median and edge landscaping
Lighting	Additional lighting for shared-use paths

Estimated Cost:
\$77,984,400.00

Shepard Road to Ireland Grove Road, not including Empire Street intersection. See page 56 for more detailed cost breakdown.

Intersection Design



Alternative A1 includes implementing intersection design best practices, which include:

- Marking pedestrian crossings at all legs
- Allowing pedestrians to cross in a single signal phase
- High-visibility crosswalks
- Minimized corner turning radii
- Consolidating dual-left-turn lanes when possible
- Right-turn lanes only as necessary
- Right-turn slip lanes (channelized lanes) not recommended
- Optimized signal timing prioritizing safety and operations

Alternative A1 Projected Safety Impacts

Table 4: Pedestrian/Bicycle Safety Impact, Alternative A1

Intervention	Impact	Existing Conditions	Alt A1: 6-Lane, Wide Median
Segment Interventions			
Reduce lane width	Speed reduction	neutral	minor positive
Increase median width	Crossover conflict reduction	neutral	neutral
Plant additional trees	Speed reduction	neutral	minor positive
Remove one travel lane in each direction	Speed reduction; Sight line improvement	neutral	n/a
Reduce pedestrian crossing distance	Conflict risk reduction	neutral	neutral
Install shared-use path	Safer facility provided	neutral	major positive
Intersection Interventions			
Reduce vehicle corner turning radii	Speed reduction	neutral	moderate positive
Remove right-turn lanes	Reduced crossing distance	neutral	moderate positive
Remove right-turn slip lanes	Speed reduction	neutral	moderate positive
Install positive offset left-turn lanes	No impact	neutral	neutral
Install adaptive signal control	No impact	neutral	neutral
Install leading pedestrian interval	Increased pedestrian visibility	neutral	moderate positive

Table 5: Driver Safety Impact, Alternative A1

Intervention	Impact	Existing Conditions	Alt A1: 6-Lane, Wide Median
Segment Interventions			
Reduce lane width	Speed reduction	neutral	minor positive
Increase median width	Crossover conflict reduction	neutral	minor positive
Plant additional trees	Speed reduction	neutral	minor positive
Remove one travel lane in each direction	Speed reduction; Sight line improvement	neutral	n/a
Reduce pedestrian crossing distance	Conflict risk reduction	neutral	neutral
Install shared-use path	Speed reduction	neutral	neutral
Intersection Interventions			
Reduce vehicle corner turning radii	Speed reduction	neutral	minor positive
Remove right-turn lanes	Potential increased speed differential	neutral	moderate negative
Remove right-turn slip lanes	No impact	neutral	neutral
Install positive offset left-turn lanes	Sightline improvement	neutral	minor positive
Install adaptive signal control	Traffic flow improvement	neutral	minor positive
Install leading pedestrian interval	Increased pedestrian visibility	neutral	minor positive

Pedestrian and Bicycle Access Impact

Additional crosswalks, single-phase pedestrian crossings, and additional shared-use paths are projected to have high positive impacts on overall pedestrian and bicycle access within and across the corridor, which includes transit users. See Section 5.0 for additional recommended network improvements.

Landscaping Opportunity Impact

A wider median provides a high-impact opportunity to increase corridor landscaping.

Traffic Operations Impact Modeling

Providing crosswalks and reducing crossing distances for pedestrians at intersections are key safety outcomes regardless of alternative. To quantify expected changes to traffic operations as a result of these modifications, Model 2 was developed. Detailed modeling was performed in Synchro/SimTraffic capacity analysis software referencing an IDOT travel demand model. The modeling process is detailed below.

Future Traffic Projections

As in the No-Build condition, ADT projections were obtained from the ILSTDM utilizing the same horizon year (2045) and assumed changes to population and employment.⁶ While the proposed intersection modifications are expected to impact capacity on the subject corridor, the changes are incorporated at a local intersection level and are not easily reflected in a statewide travel demand model. As such, the daily and peak hour vehicular volume projections for Alternative A1 are identical to those developed for the No-Build condition. Additional details on the volume development process are included in Section 4.4. (No-Build Alternative Conditions) and in the Appendix.

With the installation of the proposed modifications to the corridor, it is anticipated that study intersections would see increases in crosswalk activity due to increased pedestrian connectivity infrastructure. Each crosswalk in the study area was assumed to have 5 push-button activations per peak hour⁷.

Future Intersection Modifications

Intersection Signal Timings

Intersection signal timings were adjusted to allow for single-phase pedestrian crossings across all intersection legs adhering to the MUTCD standards outline in Section 4.3. Crossing distances were calculated assuming three 11-foot-wide travel lanes per direction, a median wide enough to accommodate dual left-turn lanes (30 feet)⁸, and 3 to 6 feet of radius return distance on each side of the roadway. Pedestrian phases were also assumed to be push-button activated.

Signal phasing at study intersections was adjusted to allow for pedestrian phases as described in Section 4.3. In general, this required increasing the amount of green time given to side streets to allow for a pedestrian to safely cross Veterans Parkway when a pedestrian phase is activated. Given the high vehicular volumes on Veterans Parkway and the narrower crossing distances across side streets, vehicle capacity was often the limiting factor in dedicating green time to Veterans Parkway. In these instances, there may be opportunities to provide automatic pedestrian phases without the need for pedestrian push buttons.

Signal timing splits and offsets were further adjusted to optimize vehicular operations and corridor progression within the study segment. In general, timings were updated to prioritize progression and operations on Veterans Parkway relative to side streets, matching the corridor's current timing plan.

Intersection Geometry

Pedestrian crossing distances were reduced through several potential modifications including lane width reductions, the removal of channelized right-turn islands, and the removal of dedicated turn lanes. All lane widths were assumed to be 11 feet, including lanes on side street approaches. Additionally, all channelized right-turns were assumed to be converted to conventional configurations outside of the Empire Street intersection.

⁶ It should be noted that the ILSTDM is a travel demand model designed for projecting daily traffic patterns across the entirety of the state. The analysis conducted to translate the model's outputs into peak hour volumes within the study area is documented in the Technical Appendix.

⁷ Based on guidance in the Synchro 12 user manual for crosswalks with "some pedestrians, but less than 15 per hour"

⁸ The model was run at the minimum IDOT width for dual left-turn lanes. As the alternative was refined through iteration, the median width was increased by 6 feet to facilitate the maintenance of existing curbs, thereby increasing pedestrian clearance intervals. The results of the model should still be considered substantially representative, though additional analysis would be required to produce the most precise results.

Dedicated right-turn lanes were removed where feasible and dual left-turn lanes were reduced to single turn lanes where feasible utilizing methodology described in Section 4.3. Table 6 and Figure 11 summarize Alternative A1 turn-lane modifications by type and location.

Table 6: Alternative A1 Turn Lane Modifications

Location	Lane Type	Alternative A1
Veterans Parkway	Right	-9
	Left	-3
	Subtotal	-12
Intersecting Streets	Right	-13
	Left	-3
	Subtotal	-16
	TOTAL	-28

As shown, few dual left-turn lanes were found to be candidates for reducing to single turn lanes due to high turning volumes and limited available green time. Conversely, the addition of green time to side streets to accommodate pedestrian clearance intervals reduced the need for right-turn capacity at many locations. Additional turn lane modification details and diagrams of proposed intersection geometry can be found in the Technical Appendices.

Future Capacity Analysis

Based on volume projections and intersection signal timing modifications, capacity analyses were prepared to evaluate future operational conditions. A capacity analysis was conducted using Synchro 12 software to assess future traffic operations during the weekday morning and evening peak hours. Synchro’s SimTraffic module was also utilized to assess corridor progression and the impact of intersection queuing on adjacent intersections.

Figure 12 details overall intersection LOS for the Alternative A1. As shown, no intersection is expected to operate at worse than overall LOS D during either peak hour. The vast majority of intersections are expected to operate at overall LOS C or better during one or both of the analyzed peak hours. Table 7 summarizes the prevalence of at-capacity (LOS E) and over-capacity (LOS F) lane groups under Alternative A1 conditions during the peak hours.

Table 7: Alternative A1 LOS by Movement Type

	Number of Movements					
	AM Peak Hour			PM Peak Hour		
	LOS A – D	LOS E	LOS F	LOS A – D	LOS E	LOS F
Veterans Parkway Through Movements	32	–	–	30	2	–
Side-Street Through Movements	15	7	–	14	8	–
Left-Turn Movements	14	20	16	11	25	14

As noted previously, side street green times were increased under Alternative A1 in order to achieve the desired clearance intervals to allow pedestrians to cross Veterans Parkway in a single phase. As a result, significantly fewer side-street through movements (7-8) are projected to operate at LOS E or LOS F compared to the No-Build conditions (18-19). Despite this improvement in side street performance, the vast majority of through movements on Veterans Parkway are projected to continue to operate at LOS D or better during peak hours.

Despite high levels of delay, left-turn movements on Veterans Parkway typically provide lengthy storage bays that are projected to accommodate 95th percentile queues, with few exceptions. In those cases, 50th percentile queues are expected to be accommodated within available storage. Similarly, through movements on Veterans Parkway are projected to be accommodated without extending to upstream intersections. Side-street through- and left-turn movements are more likely to exceed available storage capacity compared to movements on Veterans Parkway, as in the existing and No-Build conditions. Full LOS tables and the accompanying Synchro worksheets are included in the Appendix.

Travel Time Impacts

As in the No-Build condition, Synchro's SimTraffic module was utilized to estimate travel times in the study segment (Shepherd Road – Ireland Grove Road). Based on the results of this analysis, travel times are expected to increase between approximately 0.9 to 3.2 minutes depending on direction and time of day relative to the No-Build condition. As in the No-Build condition, the largest increases in travel time are projected for the evening peak hour, including an additional 3.2 minutes in the northbound direction and 2.5 minutes in the southbound direction. In the morning peak hour, 0.9- and 2.3-minute increases in northbound and southbound travel time are projected. A comparison of travel times between No-Build and Alternative A1 conditions is shown in Figure 13.

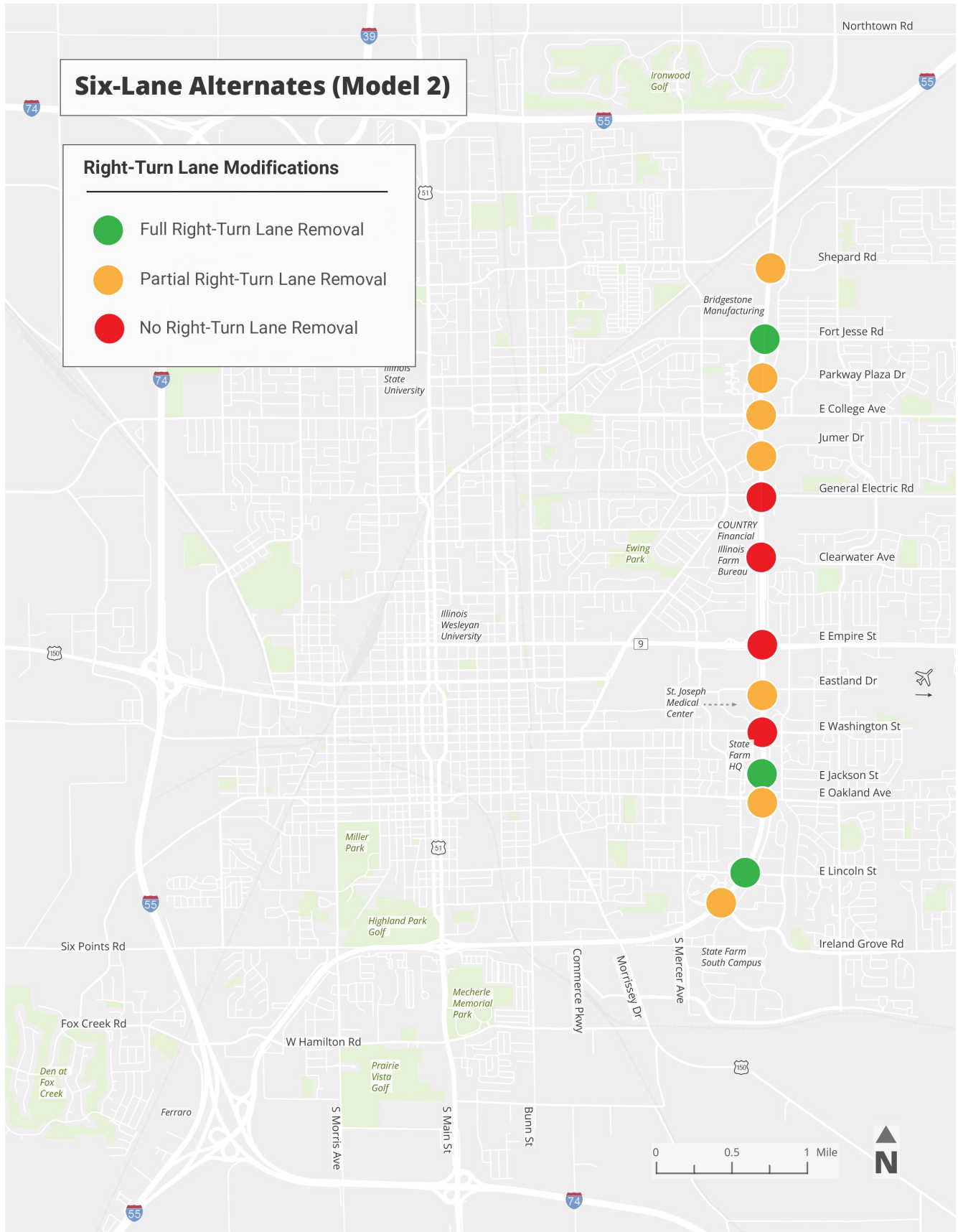


Figure 11: Model 2 Right-Turn Lane Modifications

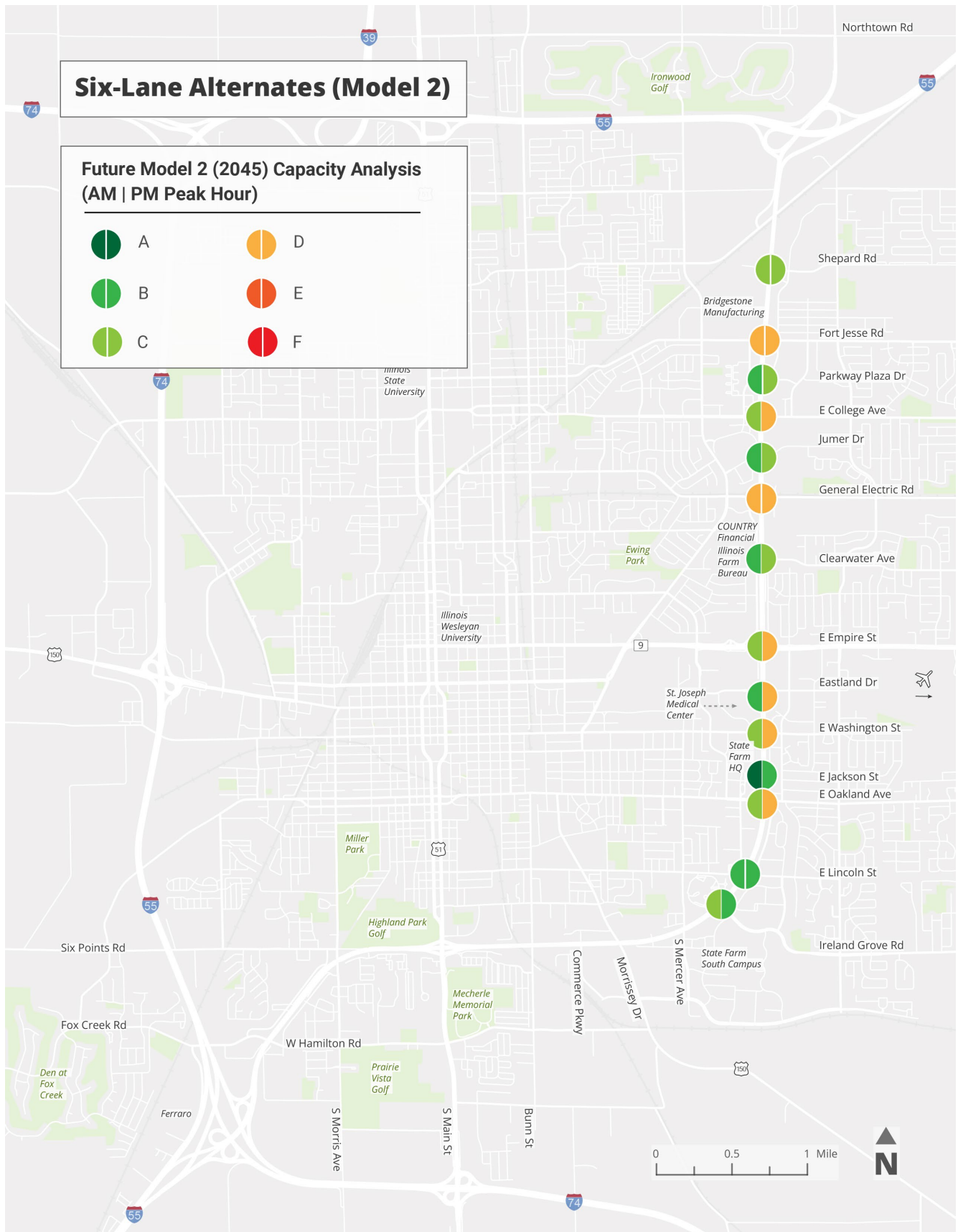
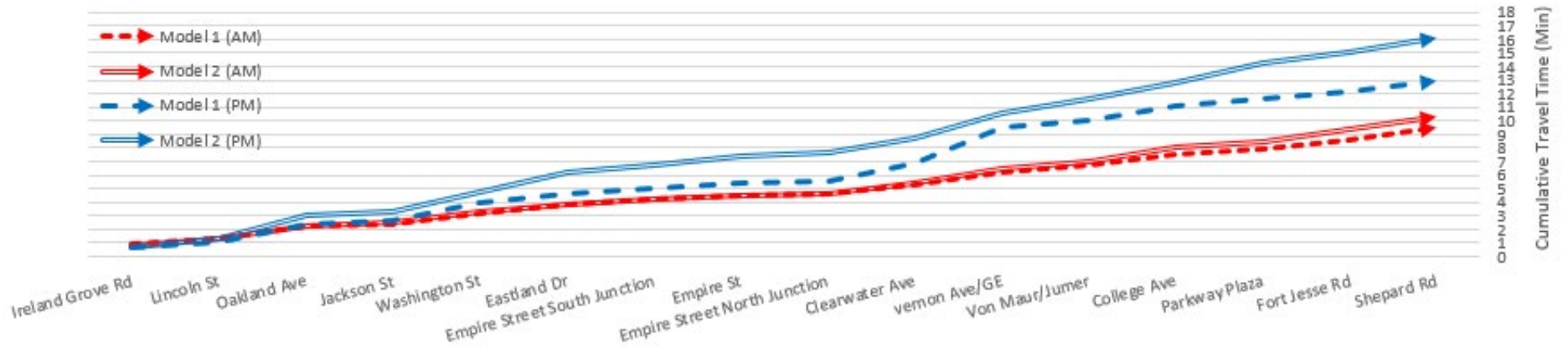


Figure 12: Future Model 2 (2045) Overall Intersection Level-of-Service Results

Veterans Parkway Travel Time (Northbound)



Veterans Parkway Travel Time (Southbound)

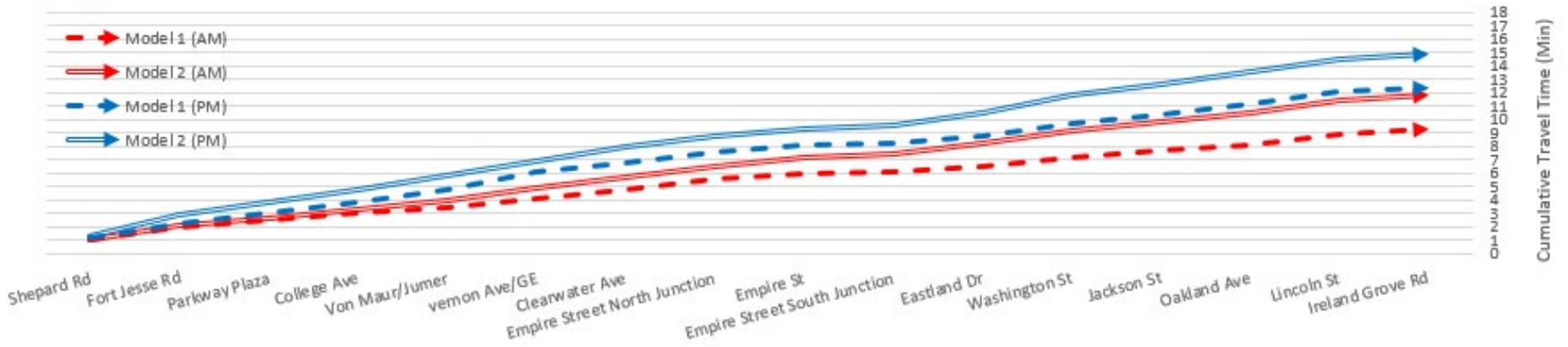


Figure 13: Travel Time Projections: No-Build Alternative (Model 2)

Alternative A1 Opportunities and Challenges:

Opportunities:

- Maintaining outside curbs in existing location can help achieve cost efficiencies as well as minimized construction impacts (cost estimates do assume 20% curb replacement ultimately necessary).
- Right-sizing travel lanes, widening the median, and increasing plantings all aim to reduce existing dangerous speeding behaviors.
- Increased plantings can improve corridor aesthetics (and safety).
- Maintaining existing number of travel lanes minimizes travel delays in peak hours.
- While curbs are maintained in existing locations, intersection design alterations would still likely reduce most or all pedestrian crossing distances.
- Shared-use paths on both sides substantially increase access for people walking, cycling, and using transit.

Challenges:

- Travel time impacts result from implementing single-phase pedestrian crossings and increasing the number of corridor pedestrian crossings.
- Maintaining existing number of travel lanes preserves excess capacity outside peak hours, which can encourage dangerous speeding and other reckless driving at times when volumes are lower.
- Increased plantings are likely to incur increased regular maintenance costs.

4.6. Alternative A2: Six-Lane Upgrade, Narrow Median

Alternative A2 maintains all characteristics of Alternative A1 except that it features a median designed to the narrowest possible width to accommodate single left-turn lane, per IDOT guidance.

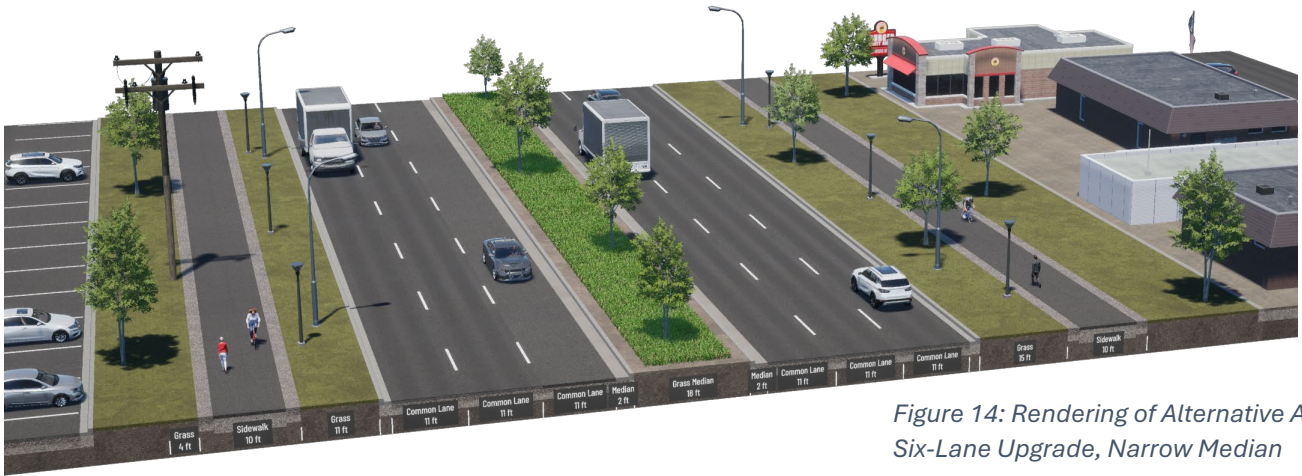


Figure 14: Rendering of Alternative A2: Six-Lane Upgrade, Narrow Median

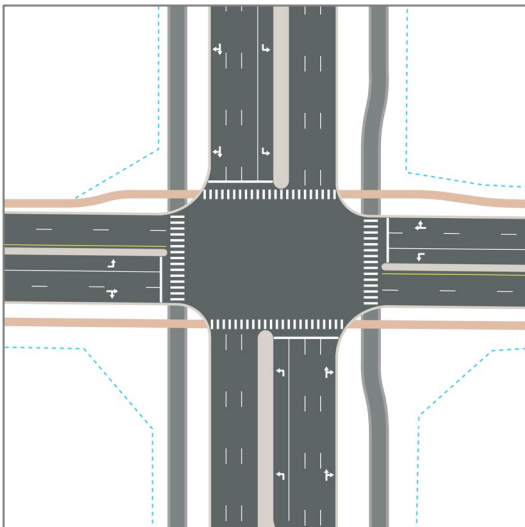
Features:

Number of Lanes	3 in each direction
Lane Width	11 feet
Raised Median Width	14 feet (18 feet including curb gutters)
Shared-Use Paths	10 feet wide, both sides
Shared-Use Path Buffer	5 feet minimum
Landscaping	Increased median and edge landscaping
Lighting	Additional lighting for shared-use paths

Estimated Cost:
\$89,743,982.00

Shepard Road to Ireland Grove Road, not including Empire Street intersection. See page 56 for more detailed cost breakdown.

Intersection Design:



Alternative A2 includes implementing intersection design best practices, which include:

- Marking pedestrian crossings at all legs
- Allowing pedestrians to cross in a single signal phase
- High-visibility crosswalks
- Minimized corner turning radii
- Consolidating dual-left-turn lanes when possible
- Right-turn lanes only as necessary
- Right-turn slip lanes (channelized lanes) not recommended
- Optimized signal timing prioritizing safety and operations

Alternative A2 Projected Safety Impacts

Table 8: Pedestrian/Bicycle Safety Impact, Alternative A2

Intervention	Impact	Existing Conditions	Alt A2: 6-Lane, Narrow Median
Segment Interventions			
Reduce lane width	Speed reduction	neutral	minor positive
Increase median width	Crossover conflict reduction	neutral	n/a
Plant additional trees	Speed reduction	neutral	minor positive
Remove one travel lane in each direction	Speed reduction; Sight line improvement	neutral	n/a
Reduce pedestrian crossing distance	Conflict risk reduction	neutral	minor positive
Install shared-use path	Safer facility provided	neutral	major positive
Intersection Interventions			
Reduce vehicle corner turning radii	Speed reduction	neutral	moderate positive
Remove right-turn lanes	Reduced crossing distance	neutral	moderate positive
Remove right-turn slip lanes	Speed reduction	neutral	moderate positive
Install positive offset left-turn lanes	No impact	neutral	neutral
Install adaptive signal control	No impact	neutral	neutral
Install leading pedestrian interval	Increased pedestrian visibility	neutral	moderate positive

Table 9: Driver Safety Impact, Alternative A2

Intervention	Impact	Existing Conditions	Alt A2: 6-Lane, Narrow Median
Segment Interventions			
Reduce lane width	Speed reduction	neutral	minor positive
Increase median width	Crossover conflict reduction	neutral	n/a
Plant additional trees	Speed reduction	neutral	minor positive
Remove one travel lane in each direction	Speed reduction; Sight line improvement	neutral	n/a
Reduce pedestrian crossing distance	Conflict risk reduction	neutral	minor positive
Install shared-use path	Speed reduction	neutral	neutral
Intersection Interventions			
Reduce vehicle corner turning radii	Speed reduction	neutral	minor positive
Remove right-turn lanes	Potential increased speed differential	neutral	moderate negative
Remove right-turn slip lanes	No impact	neutral	neutral
Install positive offset left-turn lanes	Sightline improvement	neutral	minor positive
Install adaptive signal control	Traffic flow improvement	neutral	minor positive
Install leading pedestrian interval	Increased pedestrian visibility	neutral	minor positive

Pedestrian and Bicycle Access Impact

Additional crosswalks, single-phase pedestrian crossings, a shorter overall crossing distance and additional shared-use paths are projected to have high positive impacts on overall pedestrian and bicycle access within and across the corridor, which includes transit users. See Section 5.0 for additional recommended network improvements.

Landscaping Opportunity Impact

A median somewhat wider than existing provides a moderate-impact opportunity to increase corridor landscaping. Additional moderate-impact landscaping opportunities are available on edges.

Traffic Operations Impact Modeling

Alternative A2 calls for a narrow median which would only accommodate single left-turn lanes, based on IDOT's minimum width standards for dual left-turn lanes. As such, a preliminary modeling effort included the reduction of all dual left-turn lanes into single left-turn lanes. The resulting model projected that a significant portion of left-turn lanes on Veterans Parkway would operate over capacity, creating 95th percentile queues that would exceed available storage. Queue spillback would in turn be expected to impact through volumes and create potential gridlock within portions of the study network.

Alternative A2 Opportunities and Challenges:

Alternative A2 would generally bear most of the same opportunities and challenges as A1, except:

Opportunities:

- The removal of all dual left-turn lanes and narrowing of the median would result in improved pedestrian travel times and would be expected to provide some pedestrian safety benefits.
- A narrower median would allow for an increased buffer between shared-use pathways and vehicle travel lanes compared to Alternative A1.

Challenges:

- The removal of all dual left-turn lanes would result in substantial traffic operations impacts, including the spillover of turning queues into through lanes, which could in turn affect corridor progression and create gridlock in portions of the corridor.
- Alternative A2 would likely require full roadway reconstruction, resulting in an estimated total cost of approximately 15 percent higher than Alternative A1.

4.7. Alternative B1: Four-Lane Conversion

Alternative B1 converts the roadway to a four-lane configuration, while adding pedestrian and bicycle shared-use pathways. On a corridor as wide as Veterans Parkway, installing shared-use paths on both sides provides important pedestrian and bicycle network access benefits. Alternative B1 provides high gains in pedestrian access paired with shifts in vehicle volumes across network. Alternative B1 featured a median width that sufficiently meets IDOT requirements for dual left-turn lanes.

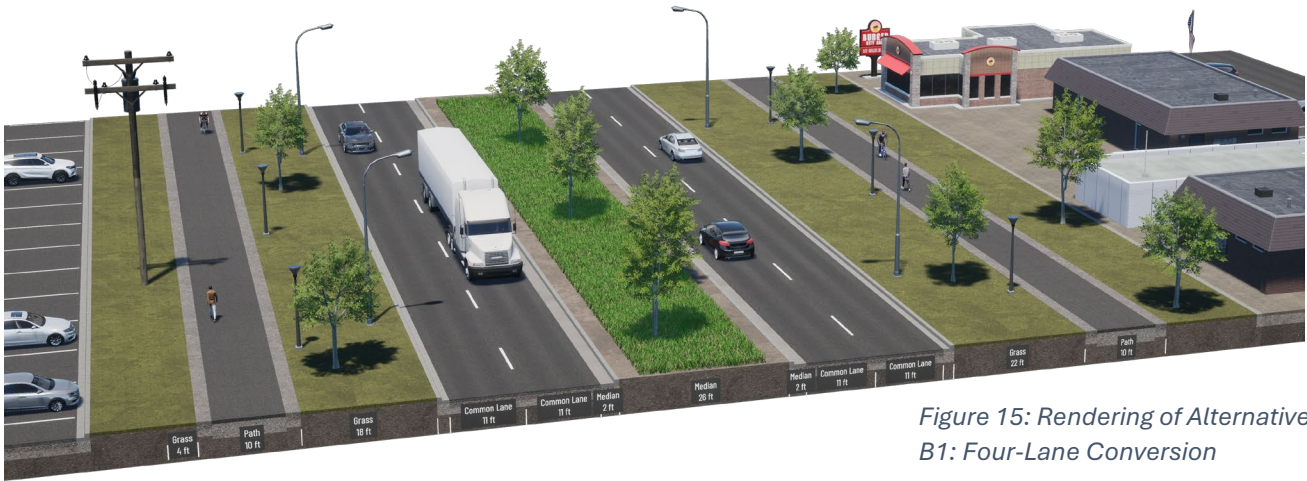


Figure 15: Rendering of Alternative B1: Four-Lane Conversion

Features:

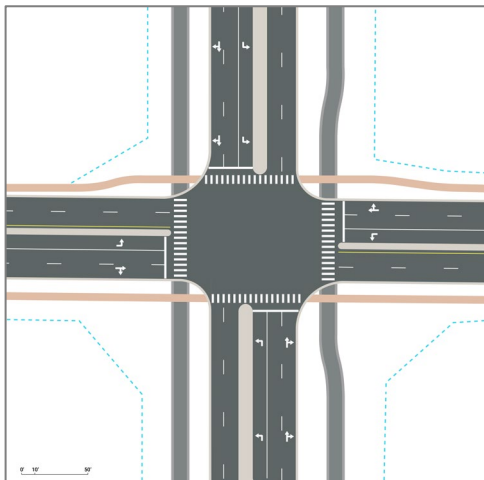
Number of Lanes	2 in each direction
Lane Width	11 feet
Raised Median Width	26 feet (30 feet including curb gutters)
Shared-Use Paths	10 feet wide, both sides
Shared-Use Path Buffer	5 feet minimum
Landscaping	Increased median and edge landscaping
Lighting	Additional lighting for shared-use paths

Estimated Cost:

\$90,250,800.00

Shepard Road to Ireland Grove Road, not including Empire Street intersection. See page 56 for more detailed cost breakdown.

Intersection Design:



Alternative B1 includes implementing intersection design best practices, which include:

- Marking pedestrian crossings at all legs
- Allowing pedestrians to cross in a single signal phase
- High-visibility crosswalks
- Minimized corner turning radii
- Consolidating dual-left-turn lanes when possible
- Right-turn lanes only as necessary
- Right-turn slip lanes (channelized lanes) not recommended
- Optimized signal timing prioritizing safety and operations

Alternative B1 Projected Safety Impacts

Table 10: Pedestrian/Bicycle Safety Impact, Alternative B1

Intervention	Impact	Existing Conditions	Alt A1: 6-Lane, Wide Median
Segment Interventions			
Reduce lane width	Speed reduction	neutral	minor positive
Increase median width	Crossover conflict reduction	neutral	neutral
Plant additional trees	Speed reduction	neutral	minor positive
Remove one travel lane in each direction	Speed reduction; Sight line improvement	neutral	moderate positive
Reduce pedestrian crossing distance	Conflict risk reduction	neutral	moderate positive
Install shared-use path	Safer facility provided	neutral	major positive
Intersection Interventions			
Reduce vehicle corner turning radii	Speed reduction	neutral	moderate positive
Remove right-turn lanes	Reduced crossing distance	neutral	minor positive
Remove right-turn slip lanes	Speed reduction	neutral	moderate positive
Install positive offset left-turn lanes	No impact	neutral	neutral
Install adaptive signal control	No impact	neutral	neutral
Install leading pedestrian interval	Increased pedestrian visibility	neutral	moderate positive

Table 11: Driver Safety Impact, Alternative B1

Intervention	Impact	Existing Conditions	Alt A1: 6-Lane, Wide Median
Segment Interventions			
Reduce lane width	Speed reduction	neutral	minor positive
Increase median width	Crossover conflict reduction	neutral	minor positive
Plant additional trees	Speed reduction	neutral	minor positive
Remove one travel lane in each direction	Speed reduction; Sight line improvement	neutral	moderate positive
Reduce pedestrian crossing distance	Conflict risk reduction	neutral	minor positive
Install shared-use path	Speed reduction	neutral	neutral
Intersection Interventions			
Reduce vehicle corner turning radii	Speed reduction	neutral	minor positive
Remove right-turn lanes	Potential increased speed differential	neutral	minor negative
Remove right-turn slip lanes	No impact	neutral	neutral
Install positive offset left-turn lanes	Sightline improvement	neutral	minor positive
Install adaptive signal control	Traffic flow improvement	neutral	minor positive
Install leading pedestrian interval	Increased pedestrian visibility	neutral	minor positive

Pedestrian and Bicycle Access Impact

Additional crosswalks, single-phase pedestrian crossings, additional shared-use paths, and a substantially shorter pedestrian crossing distance are projected to have very high positive impacts on overall pedestrian and bicycle access within and across the corridor, which includes transit users. See Section 5.0 for additional recommended network improvements.

Landscaping Opportunity Impact

A wider median and additional space on roadway edges provides a very high-impact opportunity to increase corridor landscaping.

Traffic Operations Impact Modeling

To identify projected traffic operations impacts, detailed modeling and simulations were developed using existing IDOT models as well as Synchro 12 software. The modeling process is detailed below.

Future Traffic Projections

As in the No-Build and Alternative A conditions, ADT projections were obtained from the ILSTDM utilizing the same horizon year (2045) and assumed changes to population and employment as a baseline.⁹ As such, the baseline model for Alternative B includes the same increases to area traffic growth as the No-Build and Alternative A conditions. However, under model Alternative B conditions, the ILSTDM was updated to reduce travel lanes on Veterans Parkway from three per direction to two per direction. To account for the reduction in capacity on Veterans Parkway, the ILSTDM redistributed traffic to other area roadways, balancing desired driver origins/destinations and roadway capacity.

Figure 16 graphically illustrates the relative changes in daily traffic relative to the Year 2045 No-Build condition anticipated as a result of lane reduction, with negative changes in traffic shown in blue and positive changes shown in red. Volumes on Veterans Parkway are expected to decrease as drivers seek alternate parallel routes. An average daily diversion of 17% through the study area is anticipated on Veterans Parkway, with heavier diversions shown in the middle of the corridor where volumes are highest. Similarly, many of the corridor's intersecting routes are projected to divert traffic as longer-range trips connect directly to alternate routes. The alternate routes expected to receive the heaviest diversions include the most proximate north-south corridors of Towanda Avenue and Hershey Road, which are projected to increase daily traffic by up to 16% and 13% respectively.

It should be noted that the ILSTDM is a travel demand model designed for projecting daily traffic patterns across the entirety of the state. The analysis conducted to translate the model's outputs into peak hour volumes within the study area is documented in the Technical Appendix. The resulting background growth volumes were added to existing peak hour volumes to yield future 2045 projections. Crosswalk volumes were increased to 5 pedestrian calls per peak hour using the same methodology described for Alternative A1 (Section 4.5.)

⁹ It should be noted that the ILSTDM is a travel demand model designed for projecting daily traffic patterns across the entirety of the state. The analysis conducted to translate the model's outputs into peak hour volumes within the study area is documented in the Technical Appendix.

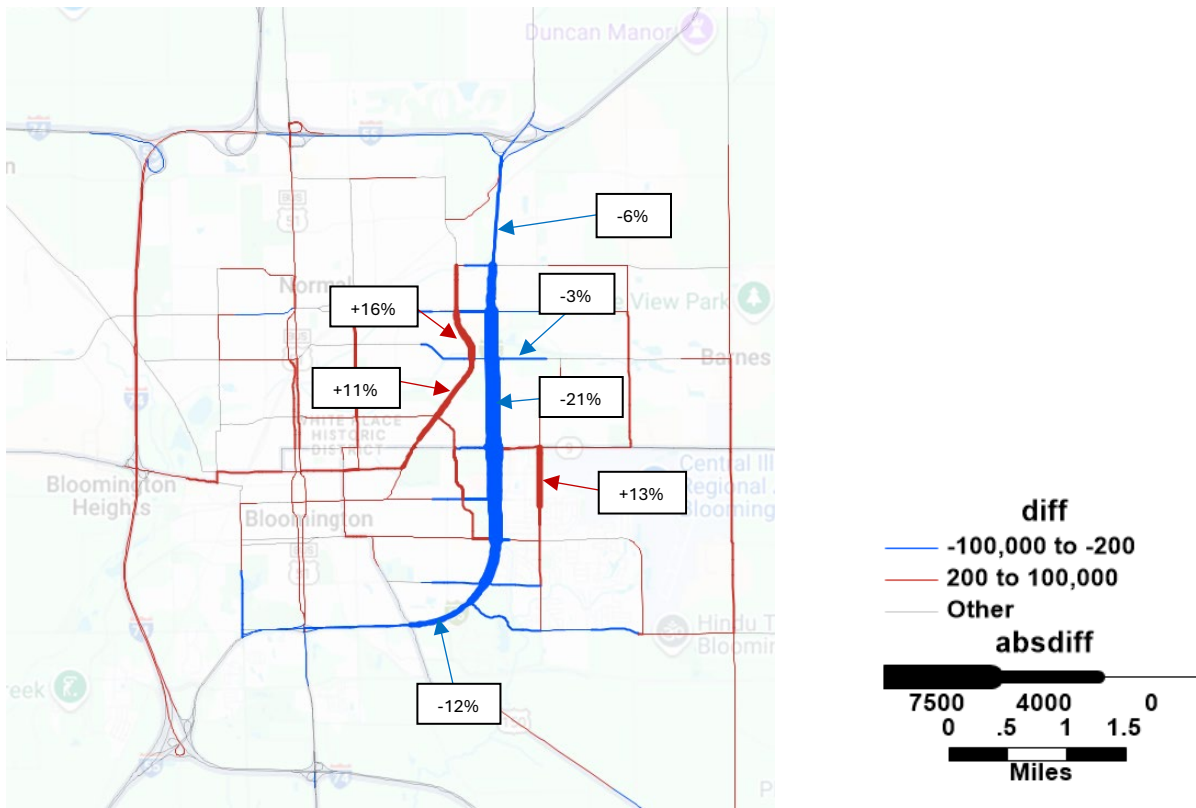


Figure 16: 2045 Average Daily Traffic (ADT) Projections for Alternative B1: Four-Lane Conversion

Future Intersection Modifications

Intersection Signal Timings

Intersection signal timings were adjusted to allow for single-phase pedestrian crossings across all intersection legs adhering to the MUTCD standards outline in Section 4.3. Crossing distances were calculated assuming two 11-foot-wide travel lanes per direction, a median wide enough to accommodate dual left-turn lanes (30 feet)¹⁰, and 3-6 feet of radius return distance on each side of the roadway. Pedestrian phases were also assumed to be push-button activated.

Signal phasing at study intersection was adjusted to allow for pedestrian phases as described in the previous section. In general, this required increasing the amount of green time given to side streets to allow for a pedestrian to safely cross Veterans Parkway when a pedestrian phase is activated. Given the high vehicular volumes on Veterans Parkway and the narrower crossing distances across side streets, vehicle capacity was often the limiting factor in dedicating green time to Veterans Parkway. In these instances, there may be opportunities to provide automatic pedestrian phases without the need for pedestrian push buttons.

Signal timing splits and offsets were further adjusted to optimize vehicular operations and corridor progression within the study segment. In general, timings were updated to prioritize progression and operations on Veterans Parkway relative to side streets, matching the corridor’s current timing plan.

¹⁰ The model was run at the minimum IDOT width for dual left-turn lanes. As the alternative was refined through iteration, the median width was increased by 6 feet to facilitate the maintenance of existing curbs, thereby increasing pedestrian clearance intervals. The results of the model should still be considered substantially representative, though additional analysis would be required to produce the most precise results.

Intersection Geometry

Pedestrian crossing distances were reduced through several potential modifications including lane width reductions, the removal of channelized right-turn islands, the removal of dedicated turn lanes, and the removal of a lane of travel in each direction on the corridor. Two lanes of travel on Veterans Parkway were assumed everywhere within the study area with the exception of its intersection with Empire Street, where three lanes per direction are expected to be required to achieve acceptable levels of service and operations. All lane widths were assumed to be 11 feet, including lanes on side street approaches. Additionally, all channelized right-turns were assumed to be converted to conventional configurations outside of the Empire Street intersection.

Dedicated right-turn lanes were removed where feasible and dual left-turn lanes were reduced to single turn lanes utilizing methodology described in Section 4.3. Table 12 and Figure 17 summarize Alternative B1 turn-lane modifications by type and location.

Table 12: Alternative B1 Turn Lane Modifications

Location	Lane Type	Alternative B1
Veterans Parkway	Right	-7
	Left	-3
	<i>Subtotal</i>	<i>-10</i>
Intersecting Streets	Right	-6
	Left	-5
	<i>Subtotal</i>	<i>-11</i>
	TOTAL	-21

Relatively few dual left-turn lanes were identified as candidates for reduction into single turn lanes. However, with a portion of vehicle trips expected to connect directly to parallel routes instead of turning onto Veterans Parkway, two locations were identified for side street approaches. Conversely, the addition of green time to side streets to accommodate pedestrian clearance intervals reduced the need for right-turn capacity at several locations. Additional turn lane modification details and diagrams of proposed intersection geometry can be found in the Technical Appendices.

Future Capacity Analysis

Based on volume projections and intersection signal timing modifications, capacity analyses were prepared to evaluate future operational conditions. A capacity analysis was conducted using Synchro 12 software to assess future traffic operations during the weekday morning and evening peak hours. Synchro’s SimTraffic module was also utilized to assess corridor progression and the impact of intersection queuing on adjacent intersections.

Figure 18 details overall intersection LOS for the Alternative B1. As shown, only a single intersection is expected to operate at worse than overall LOS D during either peak hour (Vernon Avenue/General Electric Road, PM peak hour). All intersections are expected to operate at overall LOS D or better during one or both of the analyzed peak hours, and 79% are expected to operate at better than LOS C or better during one or both peaks. Table 13 summarizes the prevalence of at-capacity (LOS E) and over-capacity (LOS F) lane groups under Alternative B1 conditions during the peak hours.

Table 13: Alternative B1 LOS by Movement Type

	Number of Movements					
	AM Peak Hour			PM Peak Hour		
	LOS A – D	LOS E	LOS F	LOS A – D	LOS E	LOS F
Veterans Parkway Through Movements	32	–	–	29	3	–
Side-Street Through Movements	7	15	–	7	12	3
Left-Turn Movements	18	24	8	12	28	10

As noted previously, side street green times were increased under Alternative B1 in order to achieve the desired clearance intervals to allow pedestrians to cross Veterans Parkway in a single phase. As a result, fewer side-street through movements (15 per peak) are projected to operate at LOS E or LOS F compared to the No-Build conditions (18-19). Despite this improvement in side street performance, the vast majority of through movements on Veterans Parkway are projected to continue to operate at LOS D or better during peak hours.

Despite high levels of delay, left-turn movements on Veterans Parkway typically provide lengthy storage bays that are projected to accommodate 95th percentile queues, with few exceptions. In those cases, 50th percentile queues are expected to be accommodated within available storage. Similarly, through movements on Veterans Parkway are projected to be accommodated without extending to conflict with upstream intersections. Side-street through- and left-turn movements are more likely to exceed available storage capacity compared to movements on Veterans Parkway, as in the existing and No-Build conditions. Full LOS tables and the accompanying Synchro worksheets are included in the Appendix.

Travel Time Impacts

As in the No-Build condition, Synchro’s SimTraffic module was utilized to estimate travel times in the study segment (Shepherd Road – Ireland Grove Road). Based on the results of this analysis, travel times are expected to increase between approximately 1.9 to 4.0 minutes depending on direction and time of day relative to the No-Build condition. The largest increases in travel time under Alternative B1 are expected for northbound travel in the evening peak hour (3.9 minutes) and for southbound travel in the morning peak hour (4.0 minutes). A comparison of travel times between No-Build and Alternative B1 conditions is shown in Figure 19.

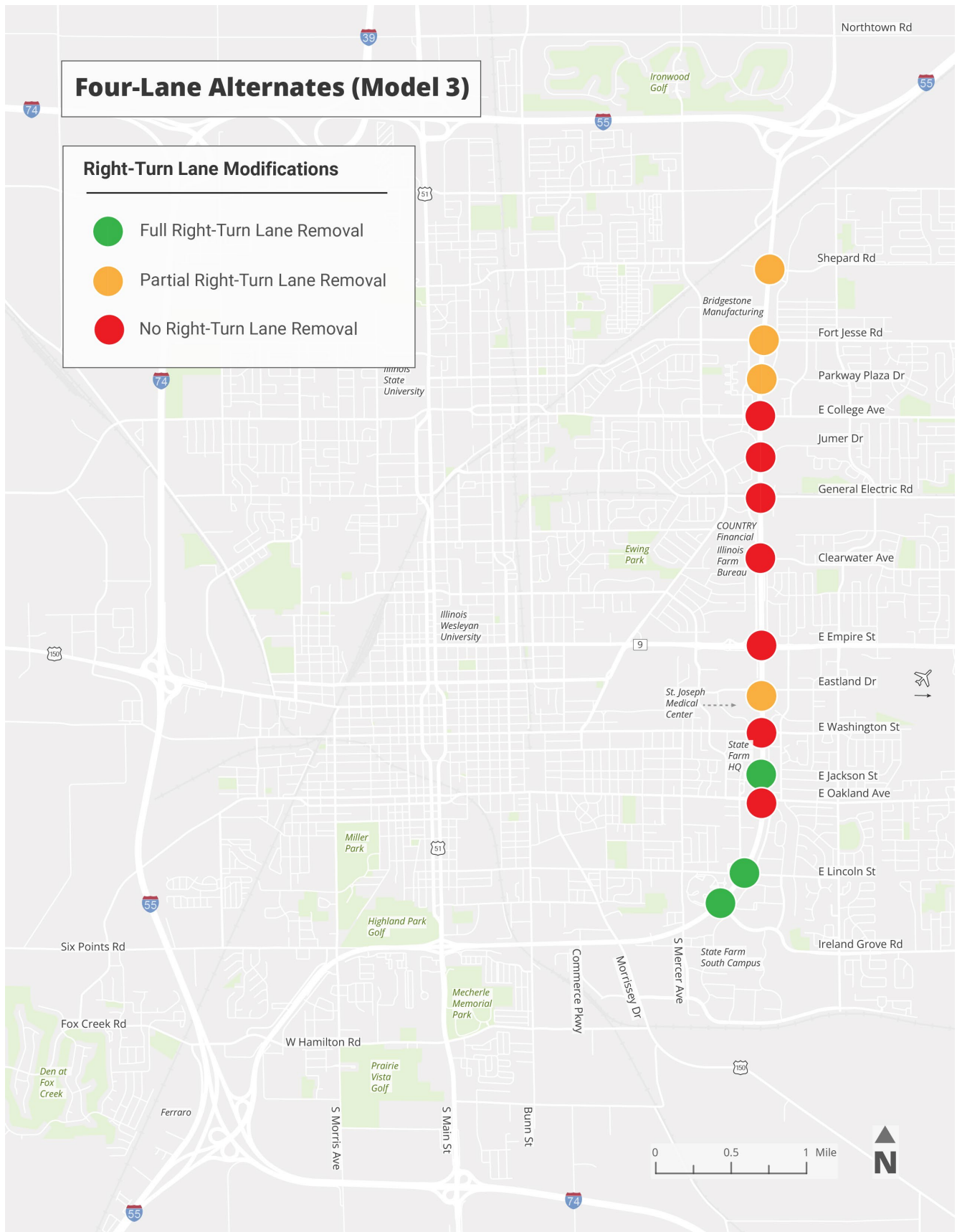


Figure 17: Model 3 Right-Turn Lane Modifications

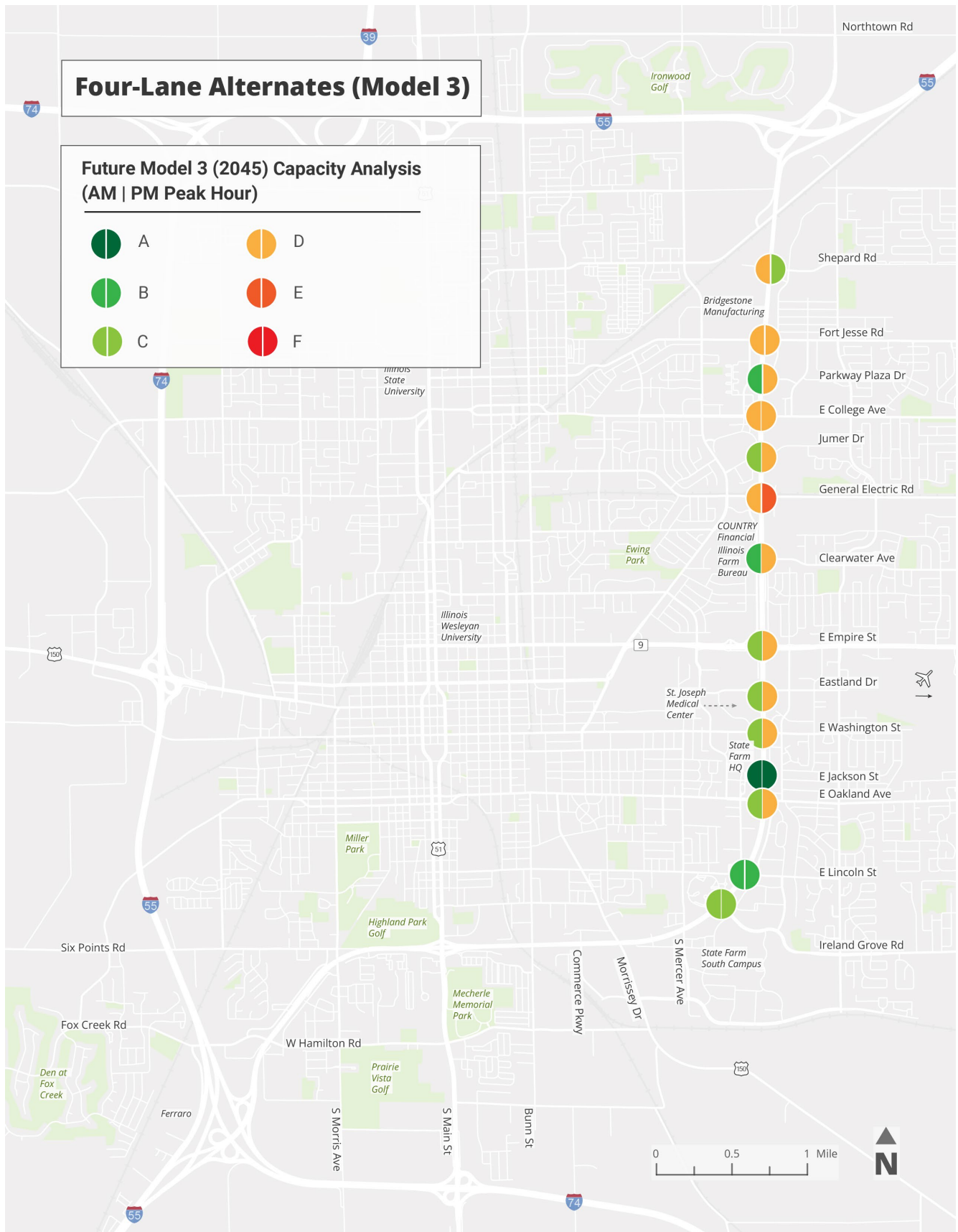
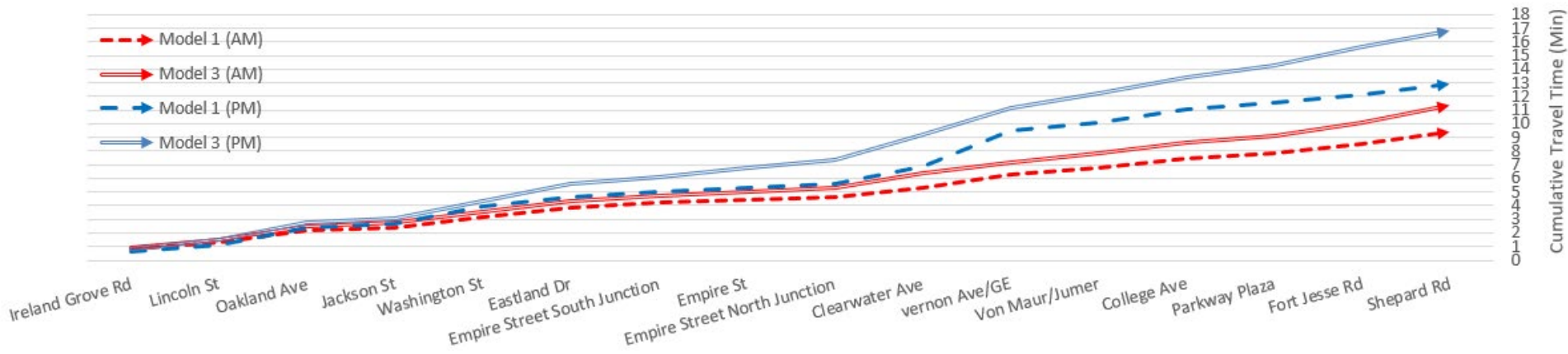


Figure 18: Future Model 3 (2045) Overall Intersection Level-of-Service Results

Veterans Parkway Travel Time (Northbound)



Veterans Parkway Travel Time (Southbound)

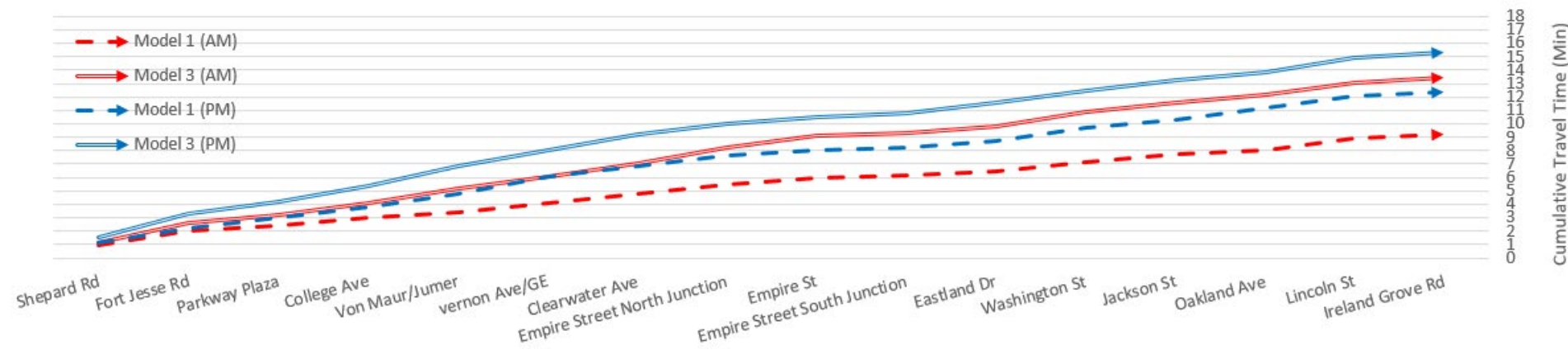


Figure 19: Travel Time Projections: No-Build Alternative (Model 3)

Alternative B1 Opportunities and Challenges:

Opportunities:

- Smaller roadway footprint reduces pedestrian and cyclist crossing distances (and travel times) and aims to increase pedestrian safety and comfort.
- Right-sizing travel lanes, widening the median, and increasing plantings all aim to reduce existing dangerous speeding behaviors.
- Space is maximized for increased plantings, which can improve corridor aesthetics (and safety).
- Shared-use paths on both sides substantially increase access for people walking, cycling, and using transit.
- Four travel lanes are projected to be sufficient to accommodate high levels of service through most of the day. This off-peak capacity right-sizing has the additional benefit of discouraging dangerous speeding and other reckless driving at times of lower volumes.

Challenges:

- Increased travel times are projected during peak travel periods, a function of both the lane reduction and implementing single-phase pedestrian crossings and increasing the number of corridor pedestrian crossings.
- Some traffic volume diversion is projected in peak periods, particularly Hershey Road between Washington Street and Empire Street as well as Towanda Avenue between Empire Street and Fort Jesse Road.

4.8. Alternative B2: Four-Lane Conversion, Narrow Median

Alternative B2 maintains all characteristics of Alternative B1 except that it features a median designed to the narrowest possible width to accommodate single left-turn lane, per IDOT guidance.

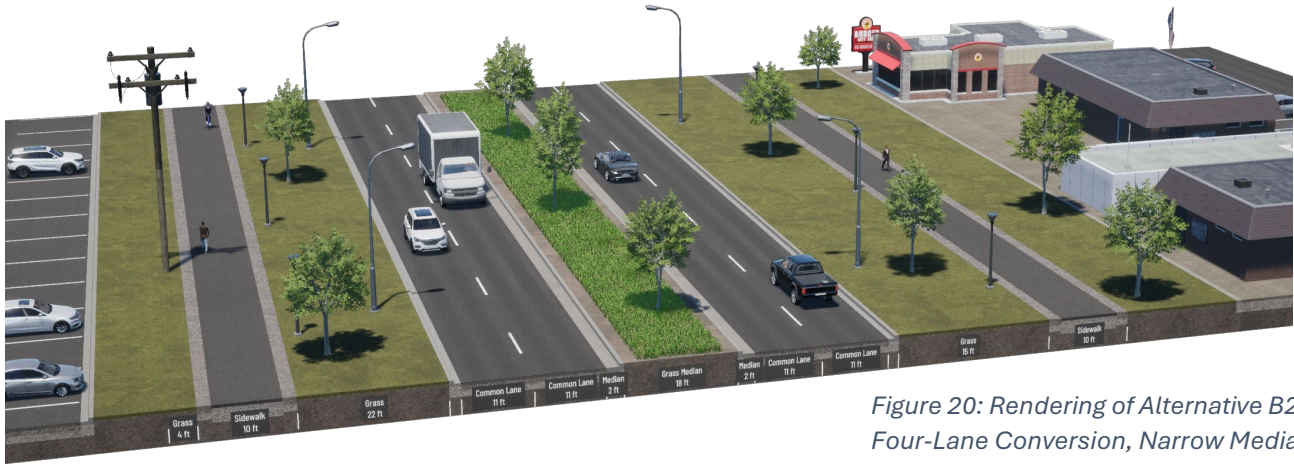


Figure 20: Rendering of Alternative B2: Four-Lane Conversion, Narrow Median

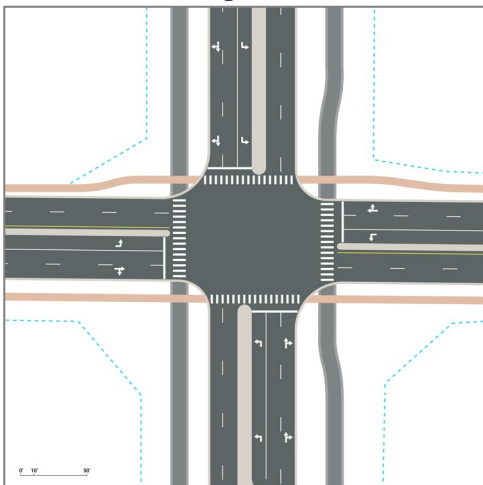
Features:

Number of Lanes	2 in each direction
Lane Width	11 feet
Raised Median Width	14 feet (18 feet including curb gutters)
Shared-Use Paths	10 feet wide, both sides
Shared-Use Path Buffer	5 feet minimum
Landscaping	Increased median and edge landscaping
Lighting	Additional lighting for shared-use paths

Estimated Cost:
\$88,974,363.00

Shepard Road to Ireland Grove Road, not including Empire Street intersection. See page 56 for more detailed cost breakdown.

Intersection Design:



Alternative B2 includes implementing intersection design best practices, which include:

- Marking pedestrian crossings at all legs
- Allowing pedestrians to cross in a single signal phase
- High-visibility crosswalks
- Minimized corner turning radii
- Consolidating dual-left-turn lanes when possible
- Right-turn lanes only as necessary
- Right-turn slip lanes (channelized lanes) not recommended
- Optimized signal timing prioritizing safety and operations

Alternative B2 Projected Safety Impacts

Table 14: Pedestrian/Bicycle Safety Impact

Intervention	Impact	Existing Conditions	Alt B2: 4-Lane, Narrow Median
Segment Interventions			
Reduce lane width	Speed reduction	neutral	minor positive
Increase median width	Crossover conflict reduction	neutral	n/a
Plant additional trees	Speed reduction	neutral	minor positive
Remove one travel lane in each direction	Speed reduction; Sight line improvement	neutral	moderate positive
Reduce pedestrian crossing distance	Conflict risk reduction	neutral	moderate positive
Install shared-use path	Safer facility provided	neutral	major positive
Intersection Interventions			
Reduce vehicle corner turning radii	Speed reduction	neutral	moderate positive
Remove right-turn lanes	Reduced crossing distance	neutral	minor positive
Remove right-turn slip lanes	Speed reduction	neutral	moderate positive
Install positive offset left-turn lanes	No impact	neutral	neutral
Install adaptive signal control	No impact	neutral	neutral
Install leading pedestrian interval	Increased pedestrian visibility	neutral	moderate positive

Table 15: Driver Safety Impact

Intervention	Impact	Existing Conditions	Alt B2: 4-Lane, Narrow Median
Segment Interventions			
Reduce lane width	Speed reduction	neutral	minor positive
Increase median width	Crossover conflict reduction	neutral	n/a
Plant additional trees	Speed reduction	neutral	minor positive
Remove one travel lane in each direction	Speed reduction; Sight line improvement	neutral	moderate positive
Reduce pedestrian crossing distance	Conflict risk reduction	neutral	minor positive
Install shared-use path	Speed reduction	neutral	neutral
Intersection Interventions			
Reduce vehicle corner turning radii	Speed reduction	neutral	minor positive
Remove right-turn lanes	Potential increased speed differential	neutral	minor negative
Remove right-turn slip lanes	No impact	neutral	neutral
Install positive offset left-turn lanes	Sightline improvement	neutral	minor positive
Install adaptive signal control	Traffic flow improvement	neutral	minor positive
Install leading pedestrian interval	Increased pedestrian visibility	neutral	minor positive

Pedestrian and Bicycle Access Impact

Additional crosswalks, single-phase pedestrian crossings, a shorter overall crossing distance and additional shared-use paths are projected to have high positive impacts on overall pedestrian and bicycle access within and across the corridor, which includes transit users. See Section 5.0 for additional recommended network improvements.

Landscaping Opportunity Impact

A median somewhat wider than existing provides a moderate-impact opportunity to increase corridor landscaping. Additional high-impact landscaping opportunities are available on edges.

Traffic Operations Impact Modeling

Alternative B2 calls for a narrow median which would only accommodate single left-turn lanes, based on IDOT's minimum width standards for dual left-turn lanes. As such, a preliminary modeling effort included the reduction of all dual left-turn lanes into single left-turn lanes. The resulting model projected that a significant portion of left-turn lanes on Veterans Parkway would operate over capacity, creating 95th percentile queues that would exceed available storage. Queue spillback would in turn be expected to impact through volumes and create potential gridlock within portions of the study network.

Alternative B2 Opportunities and Challenges:

Alternative B2 would generally bear most of the same opportunities and challenges as B1, except:

Opportunities:

- The removal of all dual left-turn lanes and narrowing of the median would result in improved pedestrian travel times and would be expected to provide some pedestrian safety benefits.
- A narrower median would allow for an increased buffer between shared-use pathways and vehicle travel lanes compared to Alternative B1.

Challenges:

- The removal of all dual left-turn lanes would result in substantial traffic operations impacts, including the spillover of turning queues into through lanes and the potential for gridlock in portions of the corridor. These impacts would be even greater compared to Alternative A2 due to the removal of one through travel lane.

4.9. Alternative C: Intersection Focus

Alternative C leaves the existing roadways segments and medians in place while focusing safety and operations upgrades on corridor intersections. Includes addition of shared-use paths along corridor. On a corridor as wide as Veterans Parkway, installing shared-use paths on both sides provides important pedestrian and bicycle network access benefits.



Figure 21: Rendering of Alternative C: Intersection Focus

Features

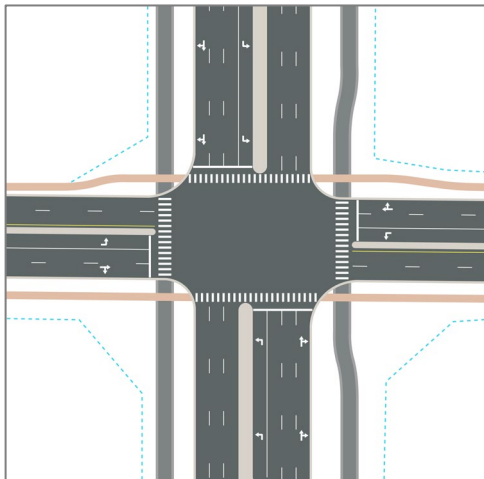
Number of Lanes	3 in each direction
Lane Width	11-13 feet
Raised Median Width	10 feet + 8-foot paved shoulders
Shared-Use Paths	10 feet wide, both sides
Shared-Use Path Buffer	5 feet minimum
Landscaping	No additional landscaping
Lighting	Additional lighting for shared-use paths

Estimated Cost:

\$43,291,200.00

Shepard Road to Ireland Grove Road, not including Empire Street intersection. See page 56 for more detailed cost breakdown.

Intersection Design



Alternative C includes implementing intersection design best practices, which include:

- Marking pedestrian crossings at all legs
- Allowing pedestrians to cross in a single signal phase
- High-visibility crosswalks
- Minimized corner turning radii
- Consolidating dual-left-turn lanes when possible
- Right-turn lanes only as necessary
- Right-turn slip lanes (channelized lanes) not recommended
- Optimized signal timing prioritizing safety and operations

Alternative C Projected Safety Impacts

Table 1: Pedestrian/Bicycle Safety Impact

Intervention	Impact	Existing Conditions	Alt C: Intersection Focus
Segment Interventions			
Reduce lane width	Speed reduction	neutral	n/a
Increase median width	Crossover conflict reduction	neutral	n/a
Plant additional trees	Speed reduction	neutral	n/a
Remove one travel lane in each direction	Speed reduction; Sight line improvement	neutral	n/a
Reduce pedestrian crossing distance	Conflict risk reduction	neutral	n/a
Install shared-use path	Safer facility provided	neutral	major positive
Intersection Interventions			
Reduce vehicle corner turning radii	Speed reduction	neutral	moderate positive
Remove right-turn lanes	Reduced crossing distance	neutral	moderate positive
Remove right-turn slip lanes	Speed reduction	neutral	moderate positive
Install positive offset left-turn lanes	No impact	neutral	neutral
Install adaptive signal control	No impact	neutral	neutral
Install leading pedestrian interval	Increased pedestrian visibility	neutral	moderate positive

Table 17: Driver Safety Impact

Intervention	Impact	Existing Conditions	Alt C: Intersection Focus
Segment Interventions			
Reduce lane width	Speed reduction	neutral	n/a
Increase median width	Crossover conflict reduction	neutral	n/a
Plant additional trees	Speed reduction	neutral	n/a
Remove one travel lane in each direction	Speed reduction; Sight line improvement	neutral	n/a
Reduce pedestrian crossing distance	Conflict risk reduction	neutral	n/a
Install shared-use path	Speed reduction	neutral	neutral
Intersection Interventions			
Reduce vehicle corner turning radii	Speed reduction	neutral	minor positive
Remove right-turn lanes	Potential increased speed differential	neutral	moderate negative
Remove right-turn slip lanes	No impact	neutral	neutral
Install positive offset left-turn lanes	Sightline improvement	neutral	minor positive
Install adaptive signal control	Traffic flow improvement	neutral	minor positive
Install leading pedestrian interval	Increased pedestrian visibility	neutral	minor positive

Pedestrian and Bicycle Access Impact

Additional crosswalks, single-phase pedestrian crossings, and additional shared-use paths are projected to have high positive impacts on overall pedestrian and bicycle access within and across the corridor, which includes transit users. See Section 5.0 for additional recommended network improvements.

Landscaping Opportunity Impact

No impact. No proposed changes to corridor segments outside of addition of shared-use paths.

Traffic Operations Impact Modeling

Alternative C proposes similar intersection modifications to Alternative A1, including the maintenance of three lanes of travel per direction on Veterans Parkway, consolidating turn lanes where possible, and the provision of crosswalks and pedestrian phases, among others. Alternative C would also feature the same peak hour traffic projections as Alternative A1 based on the maintenance of travel lanes throughout the study area.

However, an intersection-only alternative would likely incorporate small changes relative to Alternative A1 such as differing median or lanes widths. These changes would have small but relevant impacts on pedestrian clearance intervals, signal timing, and intersection capacity that may influence the alternative's overall impacts. Given the substantial similarities between Alternative C and Alternative A1, the results outlined in Section 4.5. should be considered as generally comparable.

Alternative C Opportunities and Challenges:

Opportunities:

- Leaving existing roadway segments between intersections in place reduces total project costs.
- Maintaining existing number of travel lanes minimizes travel delays in peak hours.
- Intersection design improvements can provide safety improvements for all users.
- Shared-use paths on both sides substantially increase access for people walking, cycling, and using transit.

Challenges:

- Intersection design improvements have a disproportionate safety impact, although maintaining existing segment design results in fewer opportunities for safety improvements.
- Travel time impacts result from implementing single-phase pedestrian crossings and increasing the number of corridor pedestrian crossings.
- Maintaining existing number of travel lanes preserves excess capacity outside peak hours, which can encourage dangerous speeding and other reckless driving at times when volumes are lower.

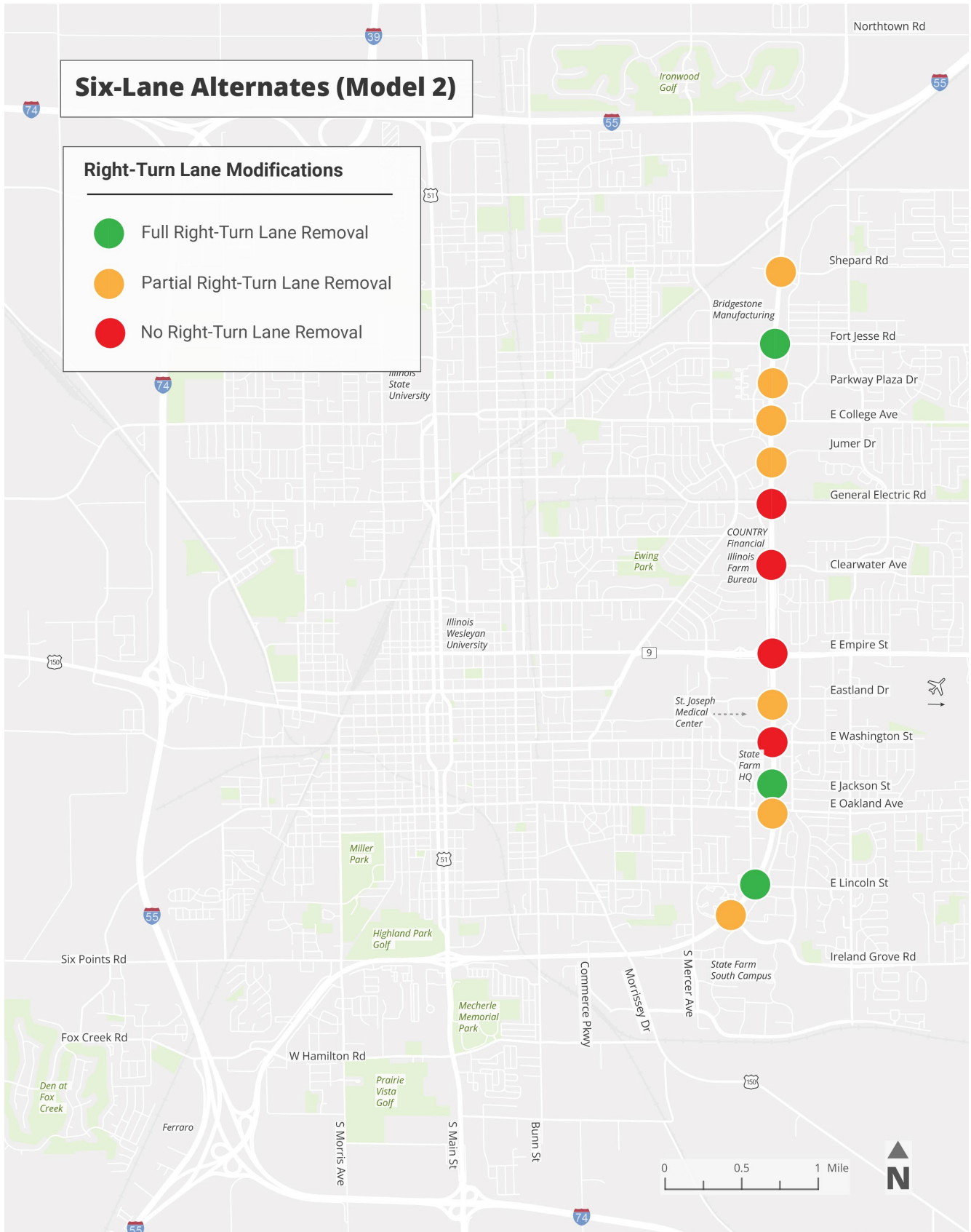


Figure 22: Model 2 Right-Turn Lane Modifications

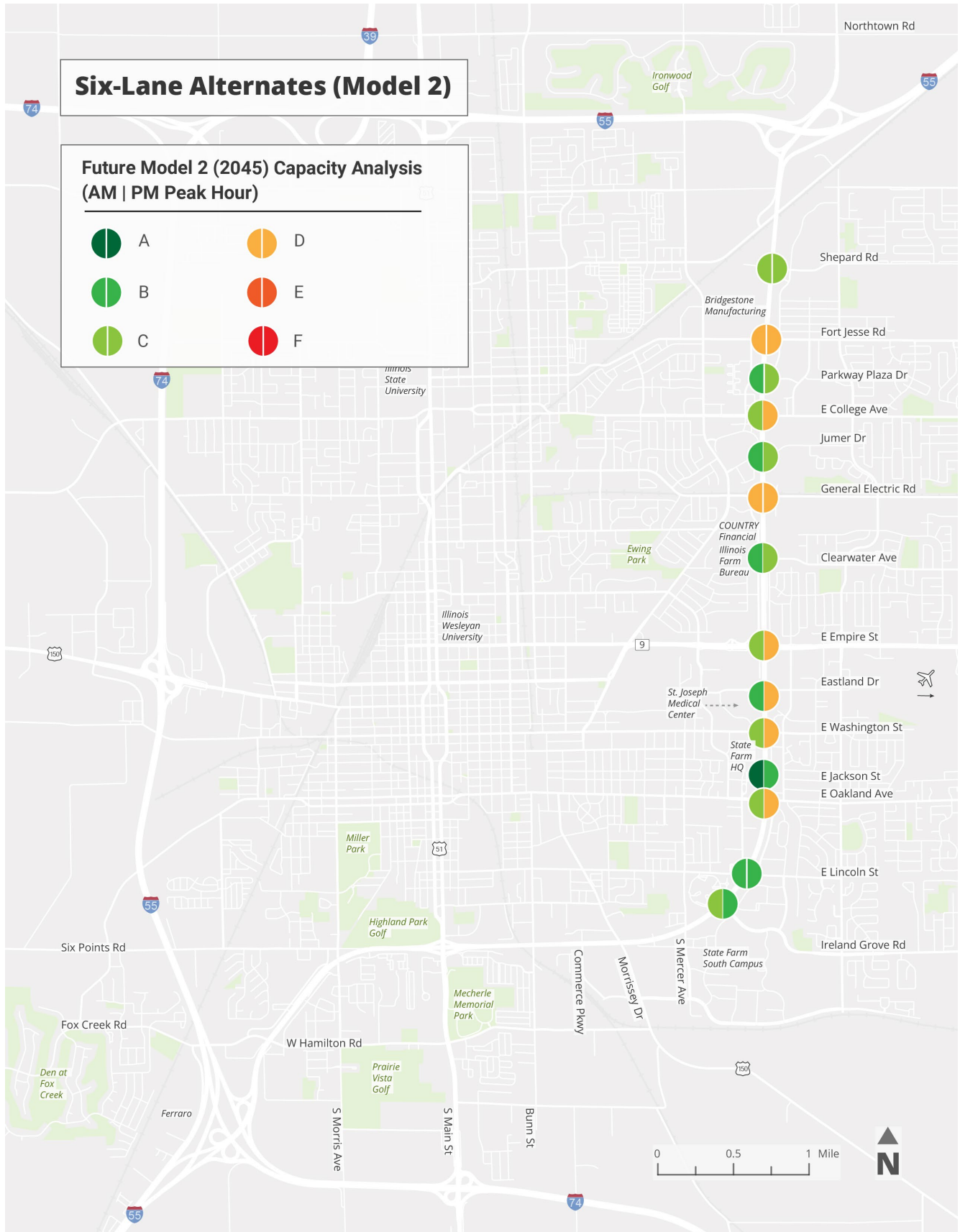


Figure 23: Future Model 2 (2045) Overall Intersection Level-of-Service Results

4.10. Design Alternatives Safety Impacts Comparison

Each design alternative incorporates a number of design interventions with proven safety impacts. The table below summarizes the scale of those impacts for design alternative, with additional context available in Appendix A.

Driver Safety Impacts:

Table 18: Driver Safety Impact Alternatives Comparison

Intervention	Impact	Alternatives					
		Existing Conditions	Alt A1: 6-Lane, Wide Median	Alt A2: 6-Lane, Narrow Median	Alt B1: 4-Lane, Wide Median	Alt B2: 4-Lane, Narrow Median	Alt C: Only Intersections + Shared-Use Paths
Reduce lane width	Speed reduction	neutral	minor positive	minor positive	minor positive	minor positive	n/a
Increase median width	Crossover conflict reduction	neutral	minor positive	n/a	minor positive	n/a	n/a
Plant additional trees	Speed reduction	neutral	minor positive	minor positive	minor positive	minor positive	n/a
Remove one travel lane in each direction	Speed reduction; Sight line improvement	neutral	n/a	n/a	moderate positive	moderate positive	n/a
Reduce pedestrian crossing distance	Conflict risk reduction	neutral	neutral	minor positive	minor positive	minor positive	n/a
Install shared-use path	No impact	neutral	neutral	neutral	neutral	neutral	neutral
Reduce vehicle corner turning radii	Speed reduction	neutral	minor positive	minor positive	minor positive	minor positive	minor positive
Remove right-turn lanes	Potential increased speed differential	neutral	moderate negative	moderate negative	minor negative	minor negative	moderate negative
Remove right-turn slip lanes	No impact	neutral	neutral	neutral	neutral	neutral	neutral
Install positive offset left-turn lanes	Sight line improvement	neutral	minor positive	minor positive	minor positive	minor positive	minor positive
Install adaptive signal control	Traffic flow improvement	neutral	minor positive	minor positive	minor positive	minor positive	minor positive
Install leading pedestrian interval	Increased pedestrian visibility	neutral	minor positive	minor positive	minor positive	minor positive	minor positive

Pedestrian and Cyclist Safety Impacts:

Table 19: Pedestrian and Cyclist Safety Impact Alternatives Comparison

Intervention	Impact	Alternatives					
		Existing Conditions	Alt A1: 6-Lane, Wide Median	Alt A2: 6-Lane, Narrow Median	Alt B1: 4-Lane, Wide Median	Alt B2: 4-Lane, Narrow Median	Alt C: Only Intersections + Shared-Use Paths
Reduce lane width	Speed reduction	neutral	minor positive	minor positive	minor positive	minor positive	n/a
Increase median width	Crossover conflict reduction	neutral	neutral	n/a	neutral	n/a	n/a
Plant additional trees	Speed reduction	neutral	minor positive	minor positive	minor positive	minor positive	n/a
Remove one travel lane in each direction	Speed reduction; Sight line improvement	neutral	n/a	n/a	moderate positive	moderate positive	n/a
Reduce pedestrian crossing distance	Conflict risk reduction	neutral	neutral	minor positive	moderate positive	moderate positive	n/a
Install shared-use path	Safer facility provided	neutral	major positive	major positive	major positive	major positive	major positive
Reduce vehicle corner turning radii	Speed reduction	neutral	moderate positive	moderate positive	moderate positive	moderate positive	moderate positive
Remove right-turn lanes	Reduced crossing distance	neutral	moderate positive	moderate positive	minor positive	minor positive	moderate positive
Remove right-turn slip lanes	Speed reduction	neutral	moderate positive	moderate positive	moderate positive	moderate positive	moderate positive
Install positive offset left-turn lanes	No impact	neutral	neutral	neutral	neutral	neutral	neutral
Install adaptive signal control	No impact	neutral	neutral	neutral	neutral	neutral	neutral
Install leading pedestrian interval	Increased pedestrian visibility	neutral	moderate positive	moderate positive	moderate positive	moderate positive	moderate positive

Safety Impacts Summary

The tables above detail the specific impacts of specific interventions and also demonstrate the cumulative impacts of several interventions. While individual interventions might have “minor” or “moderate” impacts, several interventions collectively can have major safety impacts. Additionally, Table 19 highlights the relatively disproportionate safety impacts for people walking and cycling, compared to people driving. This, in part, is due to the disproportionate existing risks.

4.11. Design Alternatives Cost Impacts Comparison

The project team conducted a cost estimate exercise that attempted to provide the most accurate estimates given the limitations of precision due to the concept-nature of alternatives and intersection design guidance. The figures below should be interpreted as high-level, preliminary, and to be used for planning comparisons only. All estimates are based in 2025 dollars and apply to the corridor from Ireland Grove Road to Shepard Road—not including the Empire Street intersection. Lighting, landscaping, utilities impacts, and signage are all included in estimates, as well as expected earthwork and the cost of demolishing existing infrastructure.

The cost of reconstructing frontage roads within the study segment to a Complete Streets standard is not included in the tables below but is estimated at approximately \$16 million.

Finally, the table below includes two cost estimates for Alternative A1: One assuming a traffic lane split of 80% resurfacing and 20% reconstruction and the second assuming 100% reconstruction. For Alternative A1, while curbs are maintained in existing locations, cost estimates assume 20% reconstruction.

Table 20: Alternatives Cost Impacts Comparison

	Alternative A1	Alternative A1	Alternative A2	Alternative B1	Alternative B2	Alternative C
	6 Lanes, Maintain Outside Curb, Resurface	6 Lanes, Maintain Outside Curb, Reconstruct	6 Lanes, Narrower Median, Reconstruct	4 Lanes, Wider Median, Reconstruct	4 Lanes, Narrower Median, Reconstruct	6 Lanes, Intersections + Paths Only
Vehicle Roadway Segments	\$28,910,600	\$40,590,600	\$38,710,252	\$38,917,600	\$37,853,903	\$0
Intersections	\$22,075,000	\$22,075,000	\$22,075,000	\$22,075,000	\$22,075,000	\$22,075,000
Shared-Use Paths	\$7,215,400	\$7,215,400	\$7,215,400	\$7,215,400	\$7,215,400	\$7,215,400
Shoulder Stormwater Drainage	\$6,786,000	\$6,786,000	\$6,786,000	\$7,001,000	\$7,001,000	\$6,786,000
Subtotal	\$64,987,000	\$76,667,000	\$74,786,652	\$75,209,000	\$74,145,303	\$36,076,000
20% Contingency	\$12,997,400	\$15,333,400	\$14,957,330	\$15,041,800	\$14,829,061	\$7,215,200
Estimated Total Cost	\$77,984,400	\$92,000,400	\$89,743,982	\$90,250,800	\$88,974,364	\$43,291,200
Low-Cost Adjustment (10% reduction)	\$70,185,960	\$82,800,360	\$80,769,584	\$81,225,720	\$80,076,927	\$38,962,080
High-Cost Adjustment (20% addition)	\$93,581,280	\$110,400,480	\$107,692,779	\$108,300,960	\$106,769,236	\$51,949,440

No-Build Alternative Cost

The existing outside third lanes on Veterans Parkway were added in the late 1990s and early 2000s, and the pavement structure consists of full-depth HMA. The existing pavement structure for the original inside four lanes is a PCC base with HMA on top. According to local and state staff, the inside four lanes still feature the original base concrete layer from the 1940s, although some spot repairs were made to the sub-surface during the widening project. Further, staff indicate the structure of the original four lanes is likely in good shape and would last for quite a while before reconstruction was needed. This information, which would benefit from additional testing and verification, indicates that a full roadway reconstruction in a No-Build scenario is not imminently necessary.

Stormwater Drainage Infrastructure

Although the existing corridor features substantial right-of-way beyond vehicle travel lanes, at least some of this area currently serves as stormwater drainage infrastructure. Therefore, one potential cost of installing shared-use paths is accommodating altered drainage infrastructure. While the most accurate cost estimate would require a much more extensive evaluation of stormwater drainage infrastructure than the scope of this project allows for, the project team developed preliminary estimates for the cost of shoulder stormwater drainage impacts. Additional details can be found in Section 9.

Additional Discussion

- When considering a full roadway reconstruction, there is minimal cost difference between the 4-lane and 6-lane alternatives. There is also minimal cost difference between a narrow median and a wider median.
- Preserving the existing exterior curbs and largely resurfacing Veterans Parkway while rebuilding a wider median is estimated to cost 15 percent less than reconstructing the entire of right-of-way.
- Reconstructing only intersections and adding shared-use paths is estimated to cost up to 53 percent less than other alternatives. Intersection improvements should be expected to have a disproportionately larger impact on safety than segment improvements, although leaving segments as is will reduce the overall impact on potential safety outcome improvements.
- Constructing a shared-use path on both sides of Veterans Parkway is estimated to cost \$1.66 million. Additionally, trail-scale lighting for the paths is estimated to cost another \$5.55 million. Finally, shared-use paths are projected to result in the need to mitigate impacts on existing stormwater systems that are estimated to cost an additional \$6.8 million to \$7 million.
- Reconstructing a typical intersection on the corridor is estimated to cost \$1.8 million per intersection, including new signals, which are estimated to cost approximately \$550,000 per intersection.
- Relocating power line poles is assumed to be the responsibility of the utility owner.

4.12. Design Alternatives Traffic Impacts Comparison

The charts below compare the projected traffic impacts for all models.

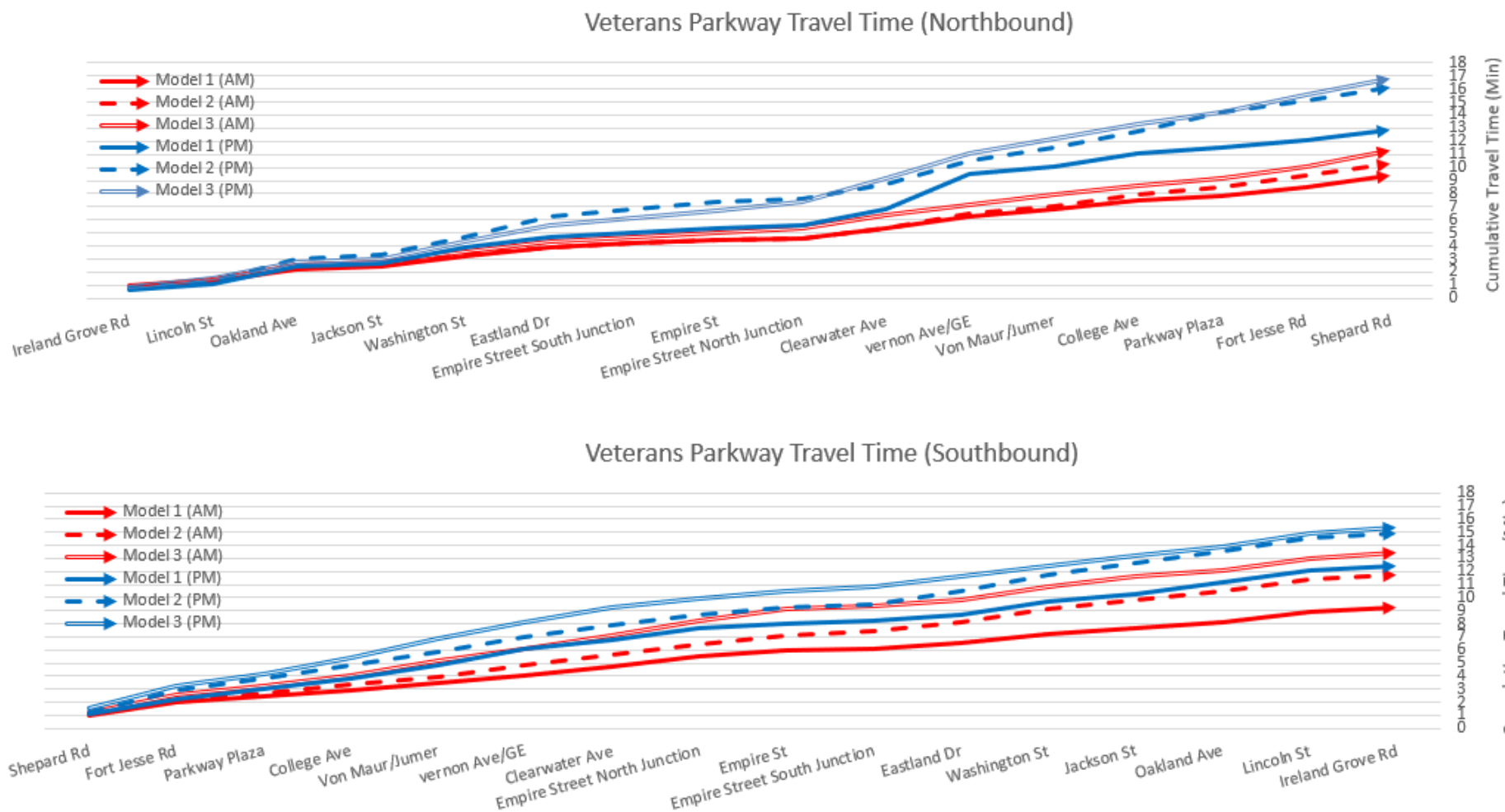


Figure 24: Comparison of Projected Traffic Impacts for Models 1-3

4.13. Design Alternatives Matrix

While each corridor design alternative involves a substantial amount of complete nuance, the table below attempts to distill impacts into high-level qualitative summaries to aid in comparing alternatives. Rows in the table below should not be read to indicate equal weighting when considering global impacts and trade-offs. Refer to sections throughout this report for additional details impacting the summaries below.

Table 21: Corridor Alternatives Impact Matrix

	Alternative A1	Alternative A2	Alternative B1	Alternative B2	Alternative C
	<i>6 Lanes, Maintain Outside Curbs, Wider Median, Resurface</i>	<i>6 Lanes, Narrower Median, Reconstruct</i>	<i>4 Lanes, Wider Median, Reconstruct</i>	<i>4 Lanes, Narrower Median, Reconstruct</i>	<i>6 Lanes, Intersections + Paths Only</i>
Ped/Bike Safety	High impact	High impact	Very high impact	Very high impact	High impact
Driver Safety	High impact	High impact	High impact	High impact	Moderate impact
Ped/Bike Access	High impact	High impact	Very high impact	Very high impact	High impact
Driver Delays	Moderate impact	Very High impact	High impact	Very high impact	Moderate impact
Cost Estimate	\$77.9 million	\$89.7 million	\$90.3 million	\$89.0 million	\$43.4 million
Landscape Opp.	High impact	Moderate impact	Very high impact	High impact	Neutral
GHG/Pollution	Low impact	Low impact	Very low impact	Very low impact	Low impact
Disadvantaged Communities	High impact	High impact	Very high impact	Very high impact	High impact

5.0 Network Improvement Guidance

5.1. Purpose and Process

Improving safety and accessibility for all users in the Veterans Parkway corridor extends beyond Veterans Parkway itself. This project is scoped to evaluate the area within a quarter-mile of the roadway to provide guidance on broader network improvements. The project team developed high-level guidance focused that focused on improving safety and access for all users and based Complete Streets principles as well as national best practice guidance, including NACTO and AASHTO guidance. Section 5.2 outlines the high-level guidance, while section 5.3 provides visual representations of impacts to existing networks simulating the impacts of adopting all guidance. Intersection-specific guidance can be found in Section 3.

5.2. Design Guidance

The City Bloomington and Town of Normal both have existing Complete Streets ordinances. The following guidelines adhere to Complete Streets principles and aid the City and Town in carrying out stated goals for creating strong multimodal transportation networks.

Sidewalks and Trails

- All roadways featuring a bus stop should include either a sidewalk or trail on both sides on the roadway.
- All [arterial and collector](#) roadways should include either a sidewalk or trail on both sides unless one side of a roadway features no residential, employment, or retail land uses.
- All public roads should include either a sidewalk or trail on at least one side (although any public roads *may* include a sidewalk or trail on both sides).
- All sidewalks and trails should terminate either at an intersection with another sidewalk or trail or at crosswalk providing access to another nearby sidewalk or trail.

Non-Intersection Crossings

- Mid-block crosswalks should feature a [Pedestrian Refuge Island](#) whenever feasible and should always feature a pedestrian refuge island on roadways with more than three vehicle through lanes unless utilizing a pedestrian hybrid beacon.
- Mid-block crosswalks should include a [Rectangular Rapid Flashing Beacon \(RRFB\)](#) on any two-lane or three-lane roadway with operating speeds under 35 mph and low-to-moderate traffic volumes.¹¹
- [High-visibility crosswalk markings](#) should be used at every mid-block crossing.
- Local-jurisdiction streets should feature marked crossing opportunities at least every 1,000 feet. Exceptions may apply in rare circumstances where a crossing would provide no utility to pedestrians traveling the network.

¹¹ "Yield Intersections," National Association of City Transportation Officials, accessed October 13, 2025, <https://nacto.org/publication/urban-bikeway-design-guide/designing-safe-intersections/unsignalized-intersections/yield-intersections/>.

Grade-Separated Crossings

Grade-separated crossings (overpasses or underpasses) can provide safe, continuous crossings where high-speed, limited-access corridors create strong barriers to pedestrian and bicyclist mobility. Grade-separation is expensive, requires careful operational and physical design, and infrastructure can be underutilized if it adds distance to trips or feels unsafe.

Grade-separation is most impactful in locations where at-grade crossings are highly undesirable due to high vehicle speeds, long queuing buildup, or constrained rights-of-way in which adding bicycle/pedestrian crossing infrastructure is not possible. Generally, grade-separation should be considered a last resort in situations where crossings are essential, but right-of-way or landscape constraints require substantial investment to provide access.

The cost of constructing overpasses and underpasses can vary substantially based on the context, and one should not be assumed to cost more or less than the other. However, when evaluating specific opportunities, cost variation may impact a decision on whether to implement an overpass or underpass.

Overpass Opportunities and Challenges

Table 22: Overpass Opportunities and Challenges

Opportunities	Challenges
Visible, open, and typically feel safer (daylight, sightlines, etc.)	Long ramps or switchbacks may be required to achieve elevation needs while maintaining accessible slope requirements, which may consume large areas.
Opportunities for iconic community identity markers, architectural flourishes, wayfinding elements etc.	Pedestrians and bicyclists may avoid long climbs/detours, reducing impact of investment.
Fewer drainage/groundwater issues and often lower ongoing maintenance requirements (compared to underpasses)	Snowy/icy ramps and bridges may create winter usability issues and maintenance concerns.
	Aesthetic/landscape impacts may feel imposing.

Underpass Opportunities and Challenges

Table 23: Underpass Opportunities and Challenges

Opportunities	Challenges
Lower visual impacts than overpasses	Can feature high cost and maintenance risks due to drainage, waterproofing, structural excavation, utilities relocation, etc.
Shorter vertical travel distance typically required (depending on existing grade conditions)	Can feel more unsafe from pedestrian perspective; May require robust lighting, security cameras, and/or active uses nearby to counteract feeling of remoteness.
Can provide sheltered crossings for bikes/peds	Geotechnical/utility conflicts can make them completely unfeasible or prohibitively expensive in certain locations.

When to Consider Grade Separation

- In a Complete Streets context, grade-separated crossings should be considered a last resort or duplicative to at-grade crossings.
- Physical or engineering constraints make at-grade crossings impossible or undesirable.
- High pedestrian/bicycle demand but no safe at-grade crossing possible (e.g., connections to major destinations, transit stops, employment centers).

Safety & Usage Patterns

- Grade separation can reduce or eliminate crashes *at a specific location*, but the systemwide safety benefit depends on whether users find the facility convenient to use.¹²
- If grade separation adds significant travel time or feels unsafe, pedestrians and bicyclists may at-grade to save time, which can result in greater risk.
- Visibility, direct routing, and minimal additional distance are critical to high use.
- Well-lit, well-landscaped, open designs can help encourage higher usage.

Design Considerations

- **Width:** 8 feet for overpasses and 14-16 feet for underpasses (or wider in underpass is longer than 60 feet in total length).¹³
- **Grade:** The design of all pedestrian overpasses and underpasses must include ramps that do not exceed 1:12 grade (preferably as shallow a grade as possible) and landings must be provided for every 30 inches of rise.¹⁴
- **Vertical clearance:** 17 feet 3 inches over pavement for overpasses.¹⁵

¹² In Mexico City, research has found that the boroughs with the most pedestrian bridges have the highest rates of traffic crashes involving pedestrians and hit-and-runs, 27 percent of which occur within 300 meters of a pedestrian bridge. In Nairobi, 43 percent of crashes involving a pedestrian happen within 500 meters of a pedestrian bridge. “Pedestrian Bridges Make Cities Less Walkable. Why Do Cities Keep Building Them?” Institute for Transportation & Development Policy, February 29, 2024, <https://itdp.org/2024/02/29/pedestrian-bridges-make-cities-less-walkable-why-do-cities-keep-building-them/>.

¹³ “Pedestrian Overpasses/Underpasses,” PEDSAFE, U.S. Department of Transportation Federal Highway Administration, accessed October 15, 2025, http://www.pedbikesafe.org/pedsafe/countermeasures_detail.cfm?CM_NUM=10

¹⁴ “Pedestrians and Accessible Design,” Design, U.S. Department of Transportation Federal Highway Administration, updated June 27, 2017, <https://www.fhwa.dot.gov/programadmin/pedestrians.cfm>.

¹⁵ “Construction of Pedestrian Overpass Structures on Partially Access-Controlled Expressways and Other State Highways,” Administrative Code, Illinois General Assembly, accessed October 15, 2025, <https://www.ilga.gov/commission/jcar/admincode/092/092005400000800R.html>.

Transit Stops

- All transit stop locations should be directly connected via sidewalk to the broader sidewalk and trail network.
- Where a bus stop is currently more than 400 feet from a crosswalk, the bus stop should either be moved to a nearby crosswalk, or a new crosswalk should be installed within 400 feet of the bus stop. The closer co-location, the better.¹⁶
- All transit stops should feature an [accessible concrete passenger boarding pad](#). The pad should be long enough to accommodate all vehicle doors used at that stop.
- All bus stops should be covered by an artificial lighting element that provides a sense of personal security for passengers and makes a waiting passenger clear to an approaching bus at a sufficient distance for the driver to safely pull over.
- All transit stops should have clear signage indicating the stop and routes served.
- Transit stops should be sited to both provide balanced spacing along the route and also to place stops as close as possible to major destinations – particularly major employment, civic, or healthcare destinations.

Bicycle Facility Type Selection

- Protected bike lanes or off-street trails are the appropriate bicycle facilities for roadways with target vehicle speeds of 30 mph or higher or that carry more than 6,000 vehicles per day, on average.
- Striped bicycle lanes are appropriate on streets where the target vehicle speed is 25 mph or less and where daily vehicle traffic volumes are 3,000 or less.
- On roadways where target vehicle speeds are 20 mph or less and handle less than 1,500 vehicles per day, it is appropriate for cyclists to share space with vehicles. Traffic calming and/or diversion treatments should be installed on these shared roadways to maintain safe vehicle speeds.

Table 24: Bicycle Facility Type Selection Guidance

Target Vehicle Speed	Daily Traffic Volume	Facility
Over 25 mph	Any	Protected Lanes or Trail
25 mph or less	6,000 or more	Protected Lanes or Trail
25 mph or less	3,000 – 6,000	Buffered Bike Lanes
25 mph or less	1,500 – 3,000	Striped Bike Lanes
20 mph or less	Less than 1,500	Shared Lanes/Bike Boulevard

¹⁶ Allison Rewalt et al., “An analysis of pedestrian safety at bus stops using FARS data,” *Journal of Safety Research* 95, (2025), <https://doi.org/10.1016/j.jsr.2025.09.002>; Guidance from the National Association of Transportation Officials (NACTO) recommends: In general, if it takes a person more than 3 minutes to walk to a crosswalk, wait to cross the street, and then resume his or her journey, he or she may decide to cross along a more direct, but unsafe or unprotected, route. 300 feet considers distance to the crosswalk, time spent waiting to cross, crossing the street, and then walking another 300 feet on the opposite crosswalk.

Roadway Right-Sizing (Lane Reductions)

- All local-jurisdiction roadways with a four-lane cross section and average annual daily traffic (AADT) under 20,000 should be considered for conversion to [three-lane cross section](#) with a continuous center left-turn lane and/or raised median plus turn lanes.
- Roadways may expand to additional lanes at intersections (a practice referred to as an “add-lane” by traffic engineers) only when doing so is necessary to provide acceptable operations. The length of these lane expansions approaching an intersection should be no more than required to hold the 95th percentile queuing length. Add-lanes on the far side of an intersection should be dropped as quickly as standard regulations allow.

Lane Widths

- Lane widths for any public road should not exceed 12 feet unless a specific need requires exemption.
- Lane widths for any local-jurisdiction public road should not exceed 11 feet unless a specific need requires exemption.

Private Property Networks

- New private retail, employer, and multi-family housing developments should be required to directly connect employee/patron/resident access points with continuous sidewalks and crosswalks to the public sidewalk and trail network.
- Existing private retail, employer, and multi-family housing development should be encouraged and supported to directly connect employee/patron/resident access points with continuous sidewalks and crosswalks to the public sidewalk and trail network.

5.3. Network Improvement Potential Impacts

This section summarizes the potential impacts of adopting the network design guidance detailed in Section 5.2 for the entire corridor study area, *in addition to* intersection and corridor segment interventions proposed in Sections 3 and 4. **All improvements are strictly illustrative and should not be construed as specific recommendations based on complete planning or engineering analysis.**

Network improvements are broken down into:

- Pedestrian improvements
- Bicycle improvements
- Transit improvements
- Roadway network improvements

Pedestrian and Bicycle Improvements

Figures 25-34 detail potential pedestrian and bicycle improvements based on network design guidance. Highlights include:

- **Sidewalks, Shared-Use Paths, Crosswalks:** Additional sidewalks, shared-use paths, and crosswalks are proposed throughout the study area to improve access and safety.
- **Mid-Block Crossings:** Several new mid-block crossings are presented with the goal of providing additional crossing opportunities where there are existing large gaps between crossings and to provide improved access

to transit stops. Mid-block crossings may feature pedestrian refuge islands (PRIs) and/or rectangular rapid flashing beacons (RRFBs).

- **Route 66 Trail:** Provide connections between new shared-use pathway along Veterans Parkway and the existing Route 66 Trail.
- **Fort Jesse Road Intersection:** Further evaluate grade-separated pedestrian and bicycle crossing on Veterans Parkway.
- **Constitution Trail:** Provide connections between new shared-use pathway along Veterans Parkway and the existing Constitution Trail crossing north of General Electric Road.
- **Arrowhead Drive Intersection:** Further evaluate pedestrian and bicycle underpass utilizing existing grade difference/existing stormwater infrastructure between Veterans Parkway and local roadway network.
- **Eastland Drive at St Joseph Hospital:** Install new mid-block crossing with pedestrian refuge island (PRI) and pedestrian-actuated signals to align with bus stops.
- **Washington Street Intersection:** Further evaluate grade-separated pedestrian and bicycle crossing on Veterans Parkway, providing enhanced connections to YMCA and hospital.
- **Lincoln Street Intersection:** Further evaluate grade-separated pedestrian and bicycle crossing on Veterans Parkway as part of broader trail network.
- **Bunn Street:** Widen Bunn Street underpass to facilitate grade-separated pedestrian and bicycle crossing.

Private Property Pedestrian Connections

While public infrastructure upgrades are key to improving access and safety for people walking, comprehensive access and safety also requires improved pedestrian connections on private property—primarily at major retail destinations, including through large parking lots. Improvements may include new sidewalks and/or crosswalks. Figures 25-29 focus on representing potential pedestrian connection improvements on private property for:

- Large shopping center
- Medical facilities
- Grocery stores
- Hotels
- Higher-density housing
- Manufactured home neighborhoods

Mechanisms for Achieving Private Property Improvements:

The City of Bloomington currently has an ordinance¹⁷ requiring new developments/redevelopments to include accommodations for pedestrian circulations via continuous internal pedestrian walkways to connect on-street surface parking areas with the primary entrances of main buildings and connections to the public pedestrian network. Town of Normal staff have indicated that they work with developments to ensure similar pedestrian connections. Newer developments in Bloomington and Normal tend to reflect higher-quality connections, and this regulatory approach helps ensure future developments provide high-quality pedestrian connections.

Retrofitting existing developments may be more complex given the potentially costly nature of improvements. Options include:

¹⁷ § 44-1214 [Ch. 44, 12-14]

- At the most basic level, City and Town officials clearly communicate desired improvements with private property owners and encourage owners to implement the most impactful upgrades in the short-term (especially relatively low-cost upgrades) and to consider more comprehensive upgrades when resurfacing parking lots and/or redeveloping properties. City and Town staff should clearly explain the access and safety benefits, including for employees of businesses.
- The City and Town could adopt a cost-sharing program whereby the municipalities share the cost of upgrades with private property owners. Chicago and Indianapolis are examples of municipalities with public sidewalk cost-sharing programs that may provide some helpful precedent.
- The City and Town could develop a grant fund, similar to façade improvement programs, whereby private property owners can apply for funding to implement pedestrian connectivity improvements.
- The City and Town could implement new local regulations that trigger pedestrian connectivity and safety improvement requirements under new conditions, such as obtaining permits for parking lot resurfacing, special uses, or physical site improvements. These regulations would need to be crafted carefully so as not to disincentivize site improvements and so as not to place an unfair burden on property owners.

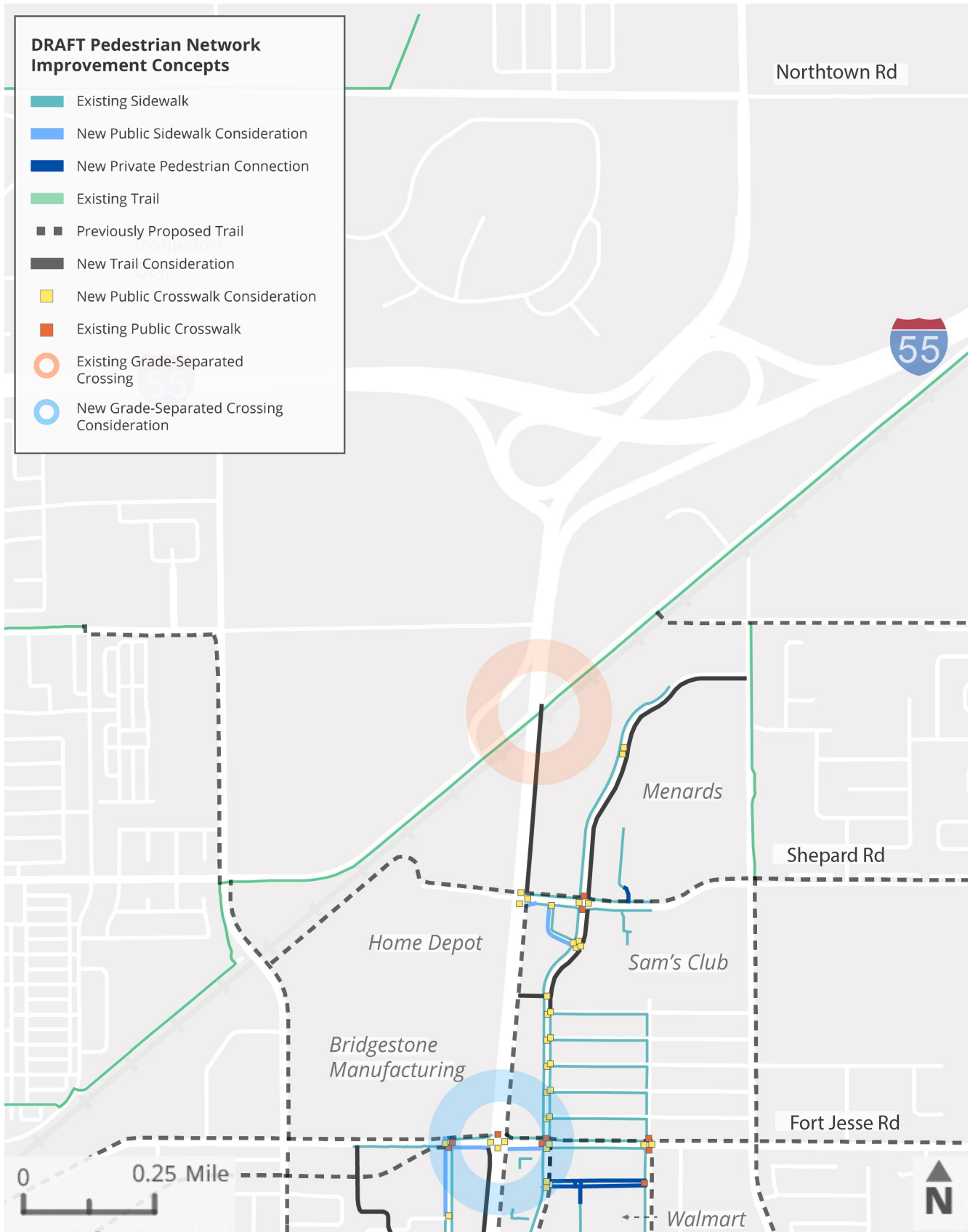


Figure 25: Pedestrian Network Improvements - Northtown Road to Fort Jesse Road

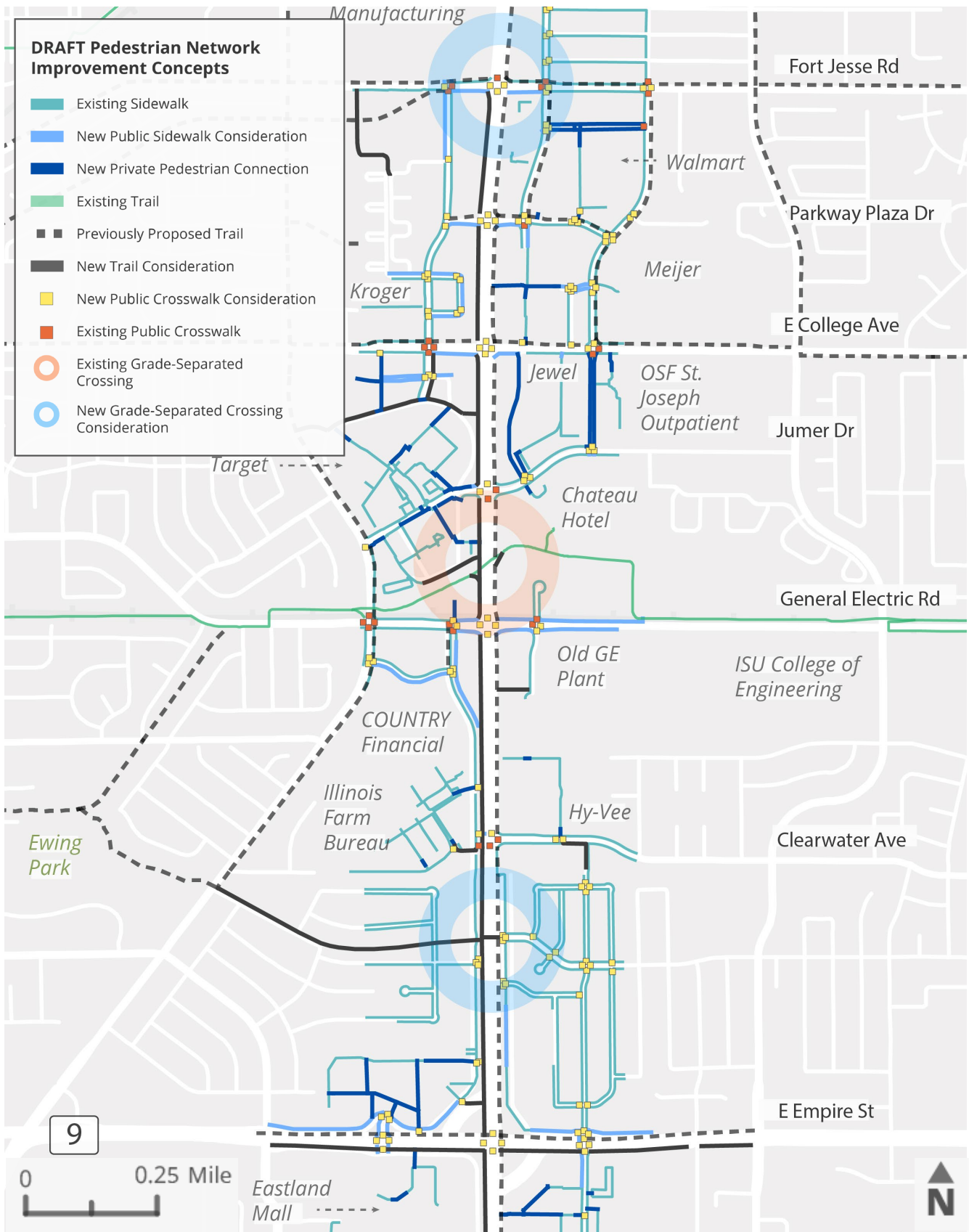


Figure 26: Pedestrian Network Improvements - Fort Jesse Road to Empire Street

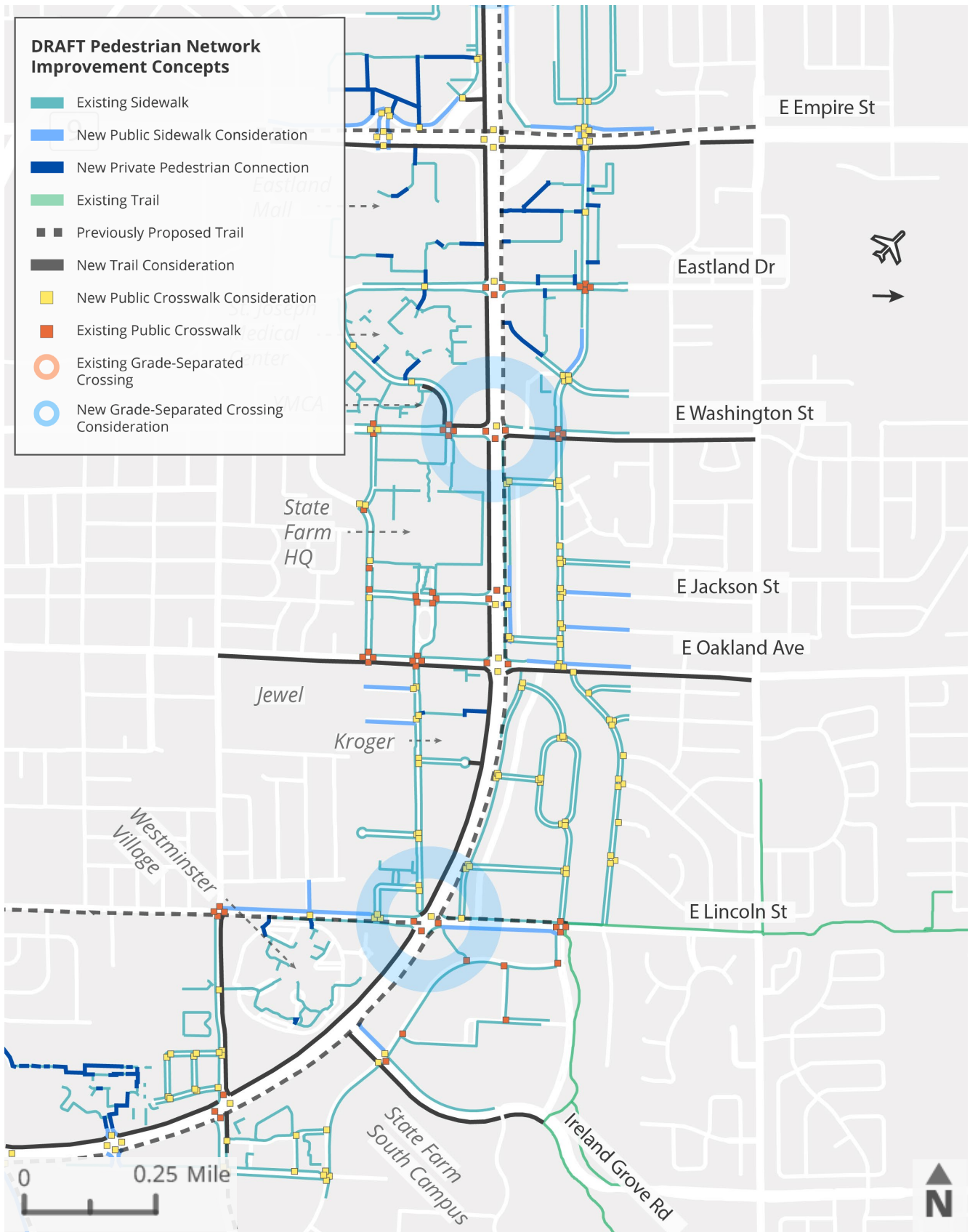


Figure 27: Pedestrian Network Improvements - Empire Street to Lincoln Street

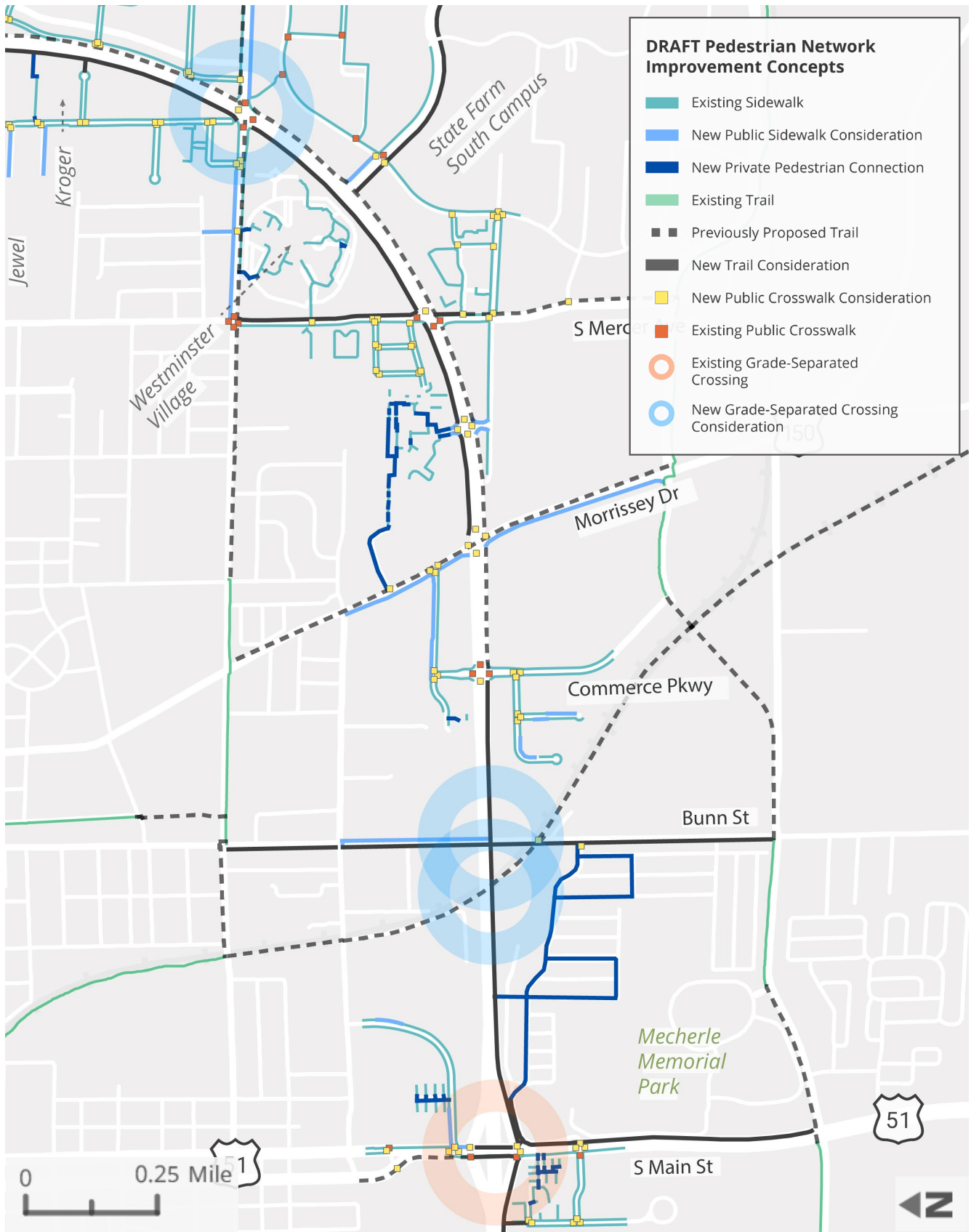


Figure 28: Pedestrian Network Improvements - Lincoln Street to Main Street

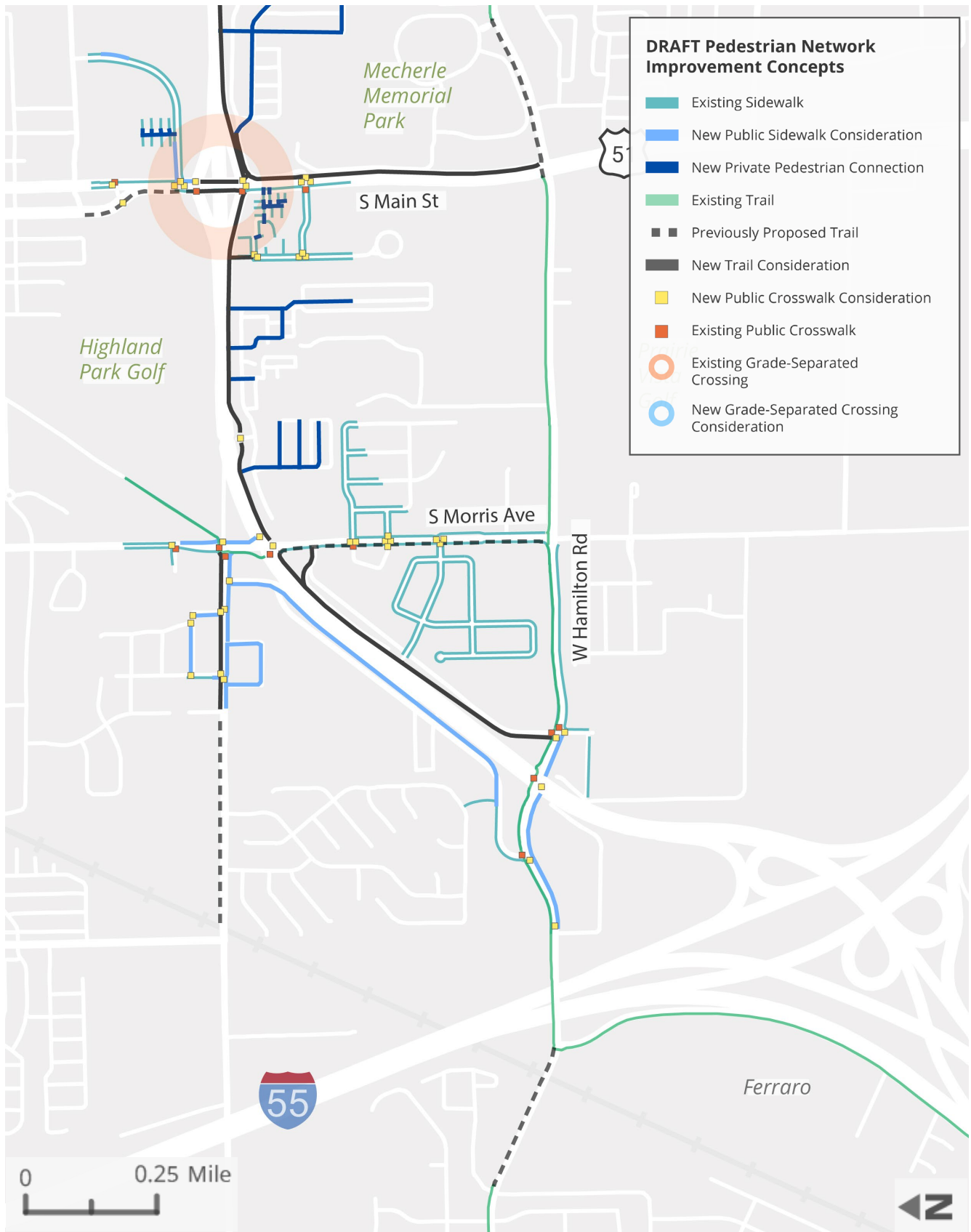


Figure 29: Pedestrian Network Improvements - Main Street to I-55



Figure 30: Bicycle Network Improvements - Northtown Road to Fort Jesse Road

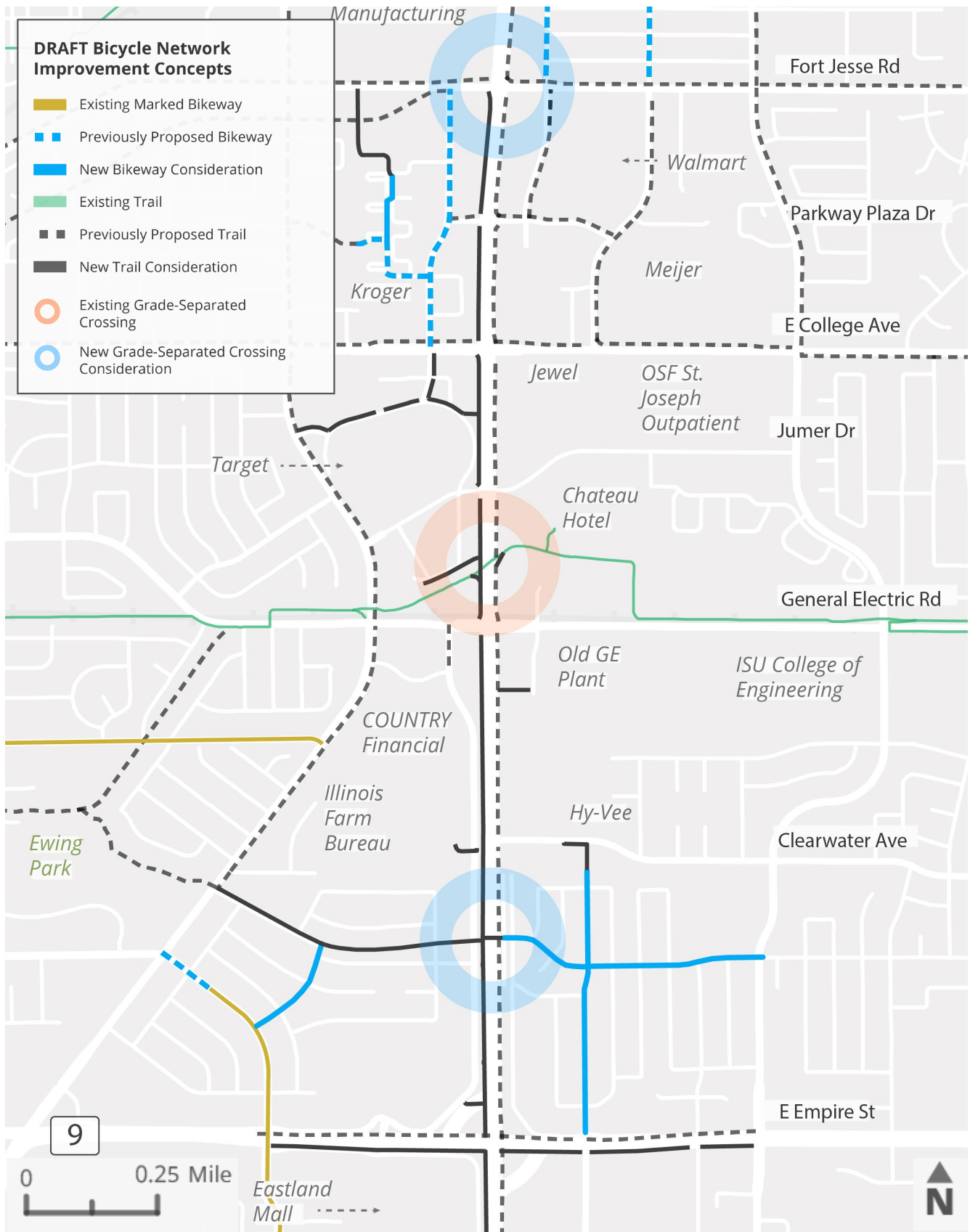


Figure 31: Bicycle Network Improvements - Fort Jesse Road to Empire Street

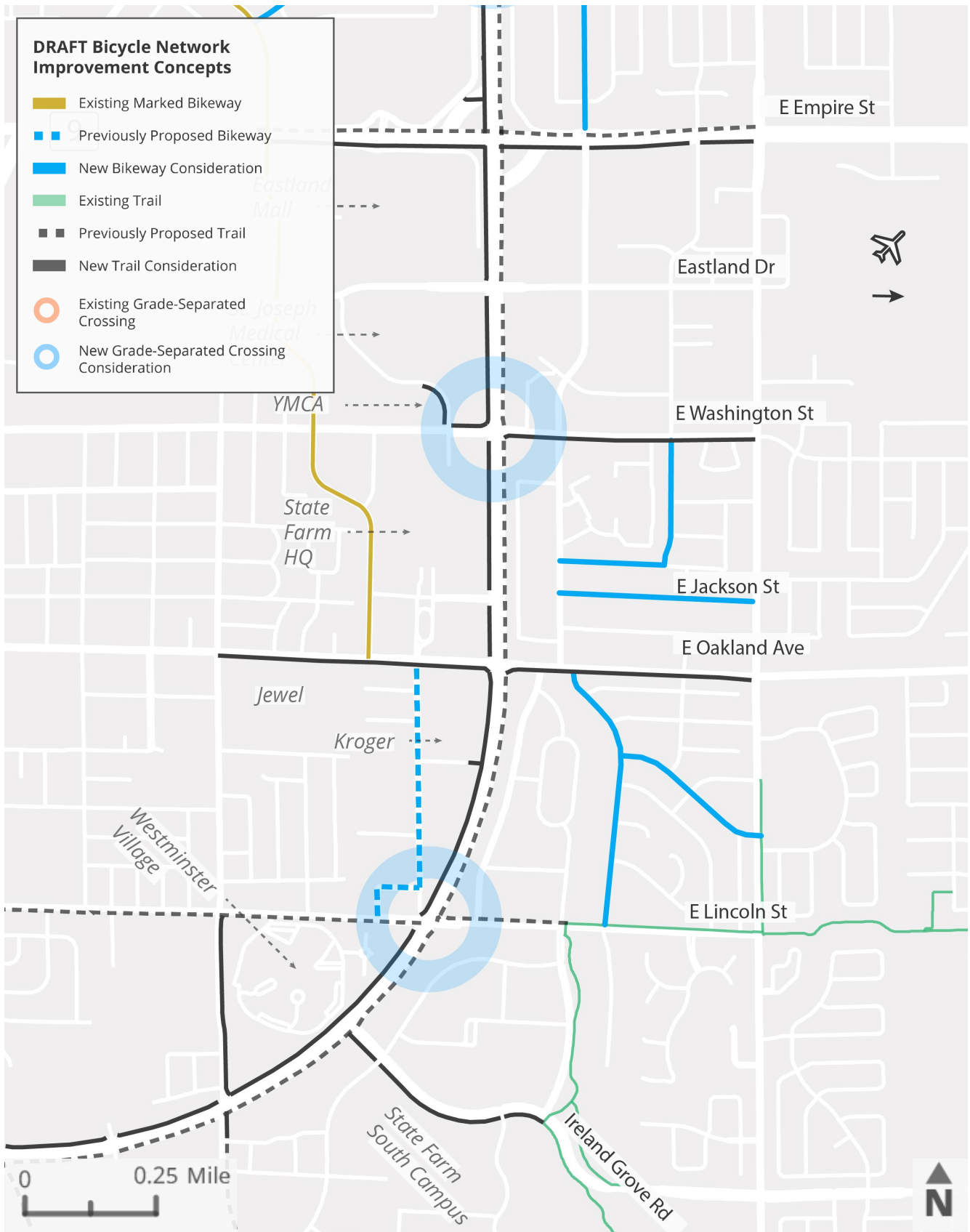


Figure 32: Bicycle Network Improvements - Empire Street to Lincoln Street

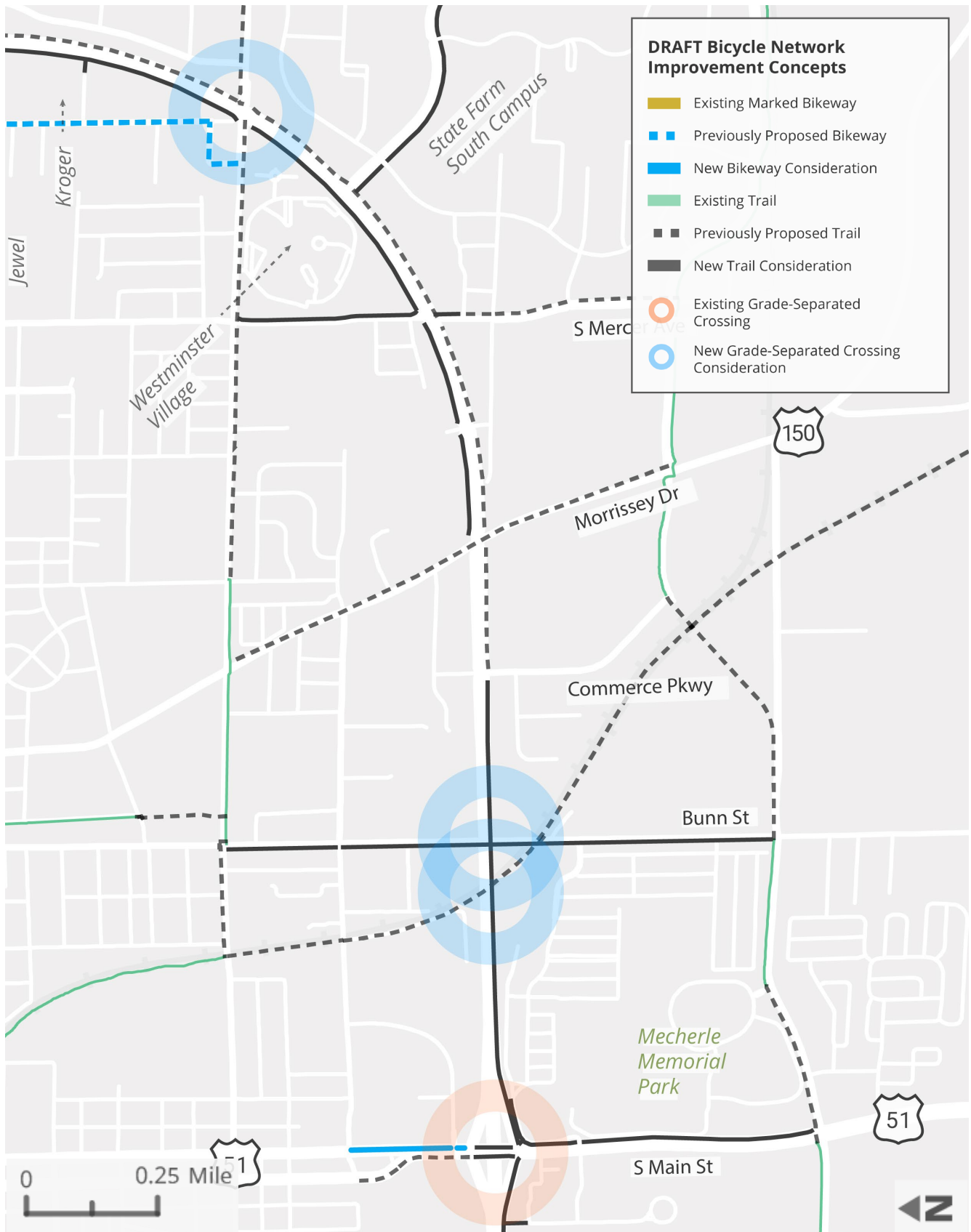


Figure 33: Bicycle Network Improvements - Lincoln Street to Main Street



Figure 34: Bicycle Network Improvements - Main Street to I-55

Transit Improvements

As most transit users start and/or end their trips as pedestrians, all pedestrian improvements should be considered transit improvements. Further, Figure 35 details additional transit stop improvements based on network design guidance. Highlights include:

- **Accessible Boarding Pads:** Concrete pads at all transit stops to improve boarding accessibility.
- **College Avenue and Susan Drive Intersection:** Add EB Purple Route stop on College Avenue and shift existing Susan Drive stops to improve access to grocery stores while maintaining clinic access.
- **Mall Drive:** Add new stops within mall site to improve access to retail destinations and reduce the need for transit riders to cross busy roadways on foot.
- **Towanda Avenue and Vernon Avenue Intersection:** Move NB transit stop to improve access to destinations along Vernon Avenue.
- **Eastland Drive at St. Joseph Hospital:** Move EB transit stop to align with new mid-block crosswalk to improve access to hospital.
- **Oakland Avenue, east of Veterans Parkway:** Shift transit stops to improve access to corridor destinations.
- **Lincoln Avenue, west of Veterans Parkway and Mercer Avenue:** Shift transit stops to increase network access, to align with new mid-block crossings, and to improve access to senior community. Add new transit stop on Mercer Avenue at Veterans Parkway to improve access to corridor destinations and reduce need for transit riders to cross bus intersection on foot.

See Section 5.4 for a high-level analysis of the impact of adding transit stops directly to Veterans Parkway.

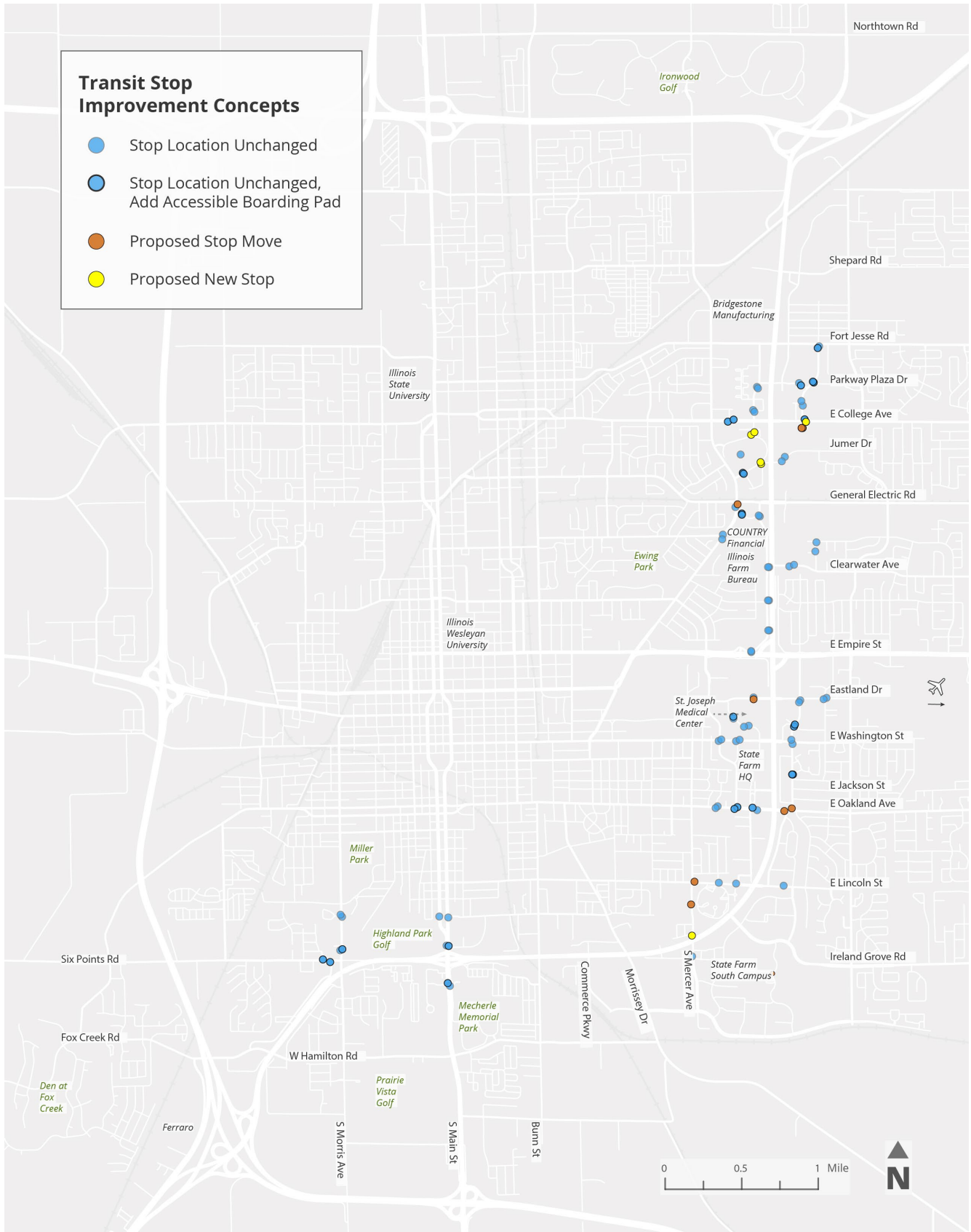


Figure 35: Transit Stop Improvement Concepts

Roadway Network Improvements

Figure 36 details potential roadway improvements focused on motor vehicles based on network design guidance as well as additional feedback from the community and the Project Steering Committee. Highlights include:

- **New Railroad Crossings:** Provide new railway crossings for vehicles north of Fort Jesse Road to improve connectivity across the area and reduce congestion Fort Jesse Road intersection. Further analysis required.
- **New Future Roadway Considerations:** Develop new roadway connections through a future redeveloped Eastland Mall site to improve vehicle connectivity and provide improved routing for transit.
- **Lane Reconfigurations:** Reconfigure existing lower-volume four-lane cross sections to three-lane cross sections with center turning lane to improve traffic operations, safety, and pedestrian crossing opportunities. Remove excess travel lanes at Main Street interchange to reduce pedestrian crossing distances and provide additional right-of-way for sidewalk and shared-use path facilities. Further analysis is required to confirm the feasibility of any lane reconfigurations.
- **New Signal Considerations:** Evaluate the utility and impacts of new traffic signals at busy grocery store entrance points. New signals would require careful coordination with signals on Veterans Parkway. Further analysis required.
- **Jumer Drive Intersection:** Redesign internal mall intersection to improve safety, reduce confusion, and provide improved pedestrian facilities.
- **Eastland Mall Access Intersections:** Redesign existing large-footprint intersections to improve safety and operations and to reduce excess pavement.
- **Greenwood Avenue Intersection:** Redesign existing large-footprint intersection to improve safety and operations and to reduce excess pavement.
- **Signage:** Provide improved signage notifying southbound Veterans Parkway drivers of final exit opportunities before entering interstate. Provide improved signage for northbound Veterans parkway drivers to give more advance notice of future lane decision for interstate direction travel.

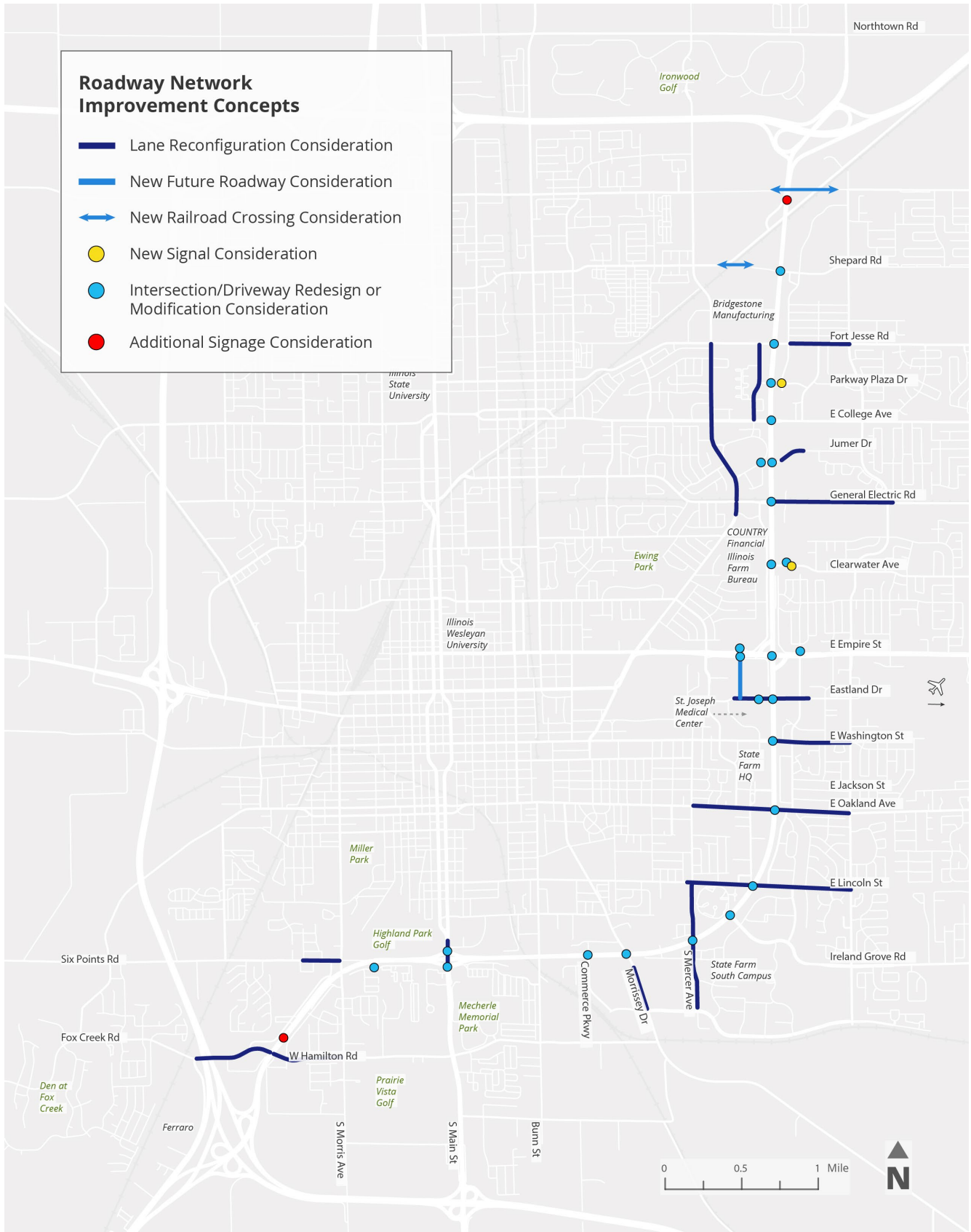


Figure 36: Roadway Network Improvement Concepts

5.4. Network Design Guidance Access Impacts

The project team developed three geospatial analyses based on the maps in Section 5.3 to determine potential quantitative benefits of implementing network design guidance. One analysis was developed to study the impacts of access to and from transit stops, a second separate analysis studied the impacts of overall pedestrian access, and a third analysis studied the potential impacts of a corridor-running transit service.

Transit Access Impacts

Figures 37 and 38 as well as Table 25 demonstrate the transit access impacts of implementing network design guidance. Highlights include:

- The percent of the corridor study area within a 10-minute walk of a transit stop increases by 70 percent (from one-third to over half).
- The number of grocery stores accessible within a 5-minute walk of a transit stop more than doubles. Within a 10-minute walk of a transit stop, the number nearly triples.
- The number of jobs¹⁸ accessible within a 5-minute walk of a transit stop increases more than 140 percent – an increase of nearly 8,000 new jobs.

Table 25: Transit Access Impacts Summary

	Existing	Future Network	Percent Increase
Transit Stop Access			
Share of corridor study area within 5-minute walk of transit stop	23%	37%	61%
Share of corridor study area within 10-minute walk of transit stop	33%	56%	70%
Share of corridor study area within 15-minute walk of transit stop	37%	65%	76%
Grocery Store Access via Transit			
Number of grocery stores accessible within 5-minute walk of transit	5	11	120%
Number of grocery stores accessible within 10-minute walk of transit	5	13	160%
Number of grocery stores accessible within 15-minute walk of transit	5	13	160%
Job Access via Transit			
Number of jobs accessible within 5-minute walk of transit	5,380	13,042	142%
Number of jobs accessible within 10-minute walk of transit	18,973	27,730	46%
Number of jobs accessible within 15-minute walk of transit	19,349	28,419	47%

¹⁸ Jobs data via Data Axle via Esri Business Analytcs. Data was cleaned to remove all "employers" with less than one employee as well as an apparent duplicate counting of State Farm employees at the main headquarters.

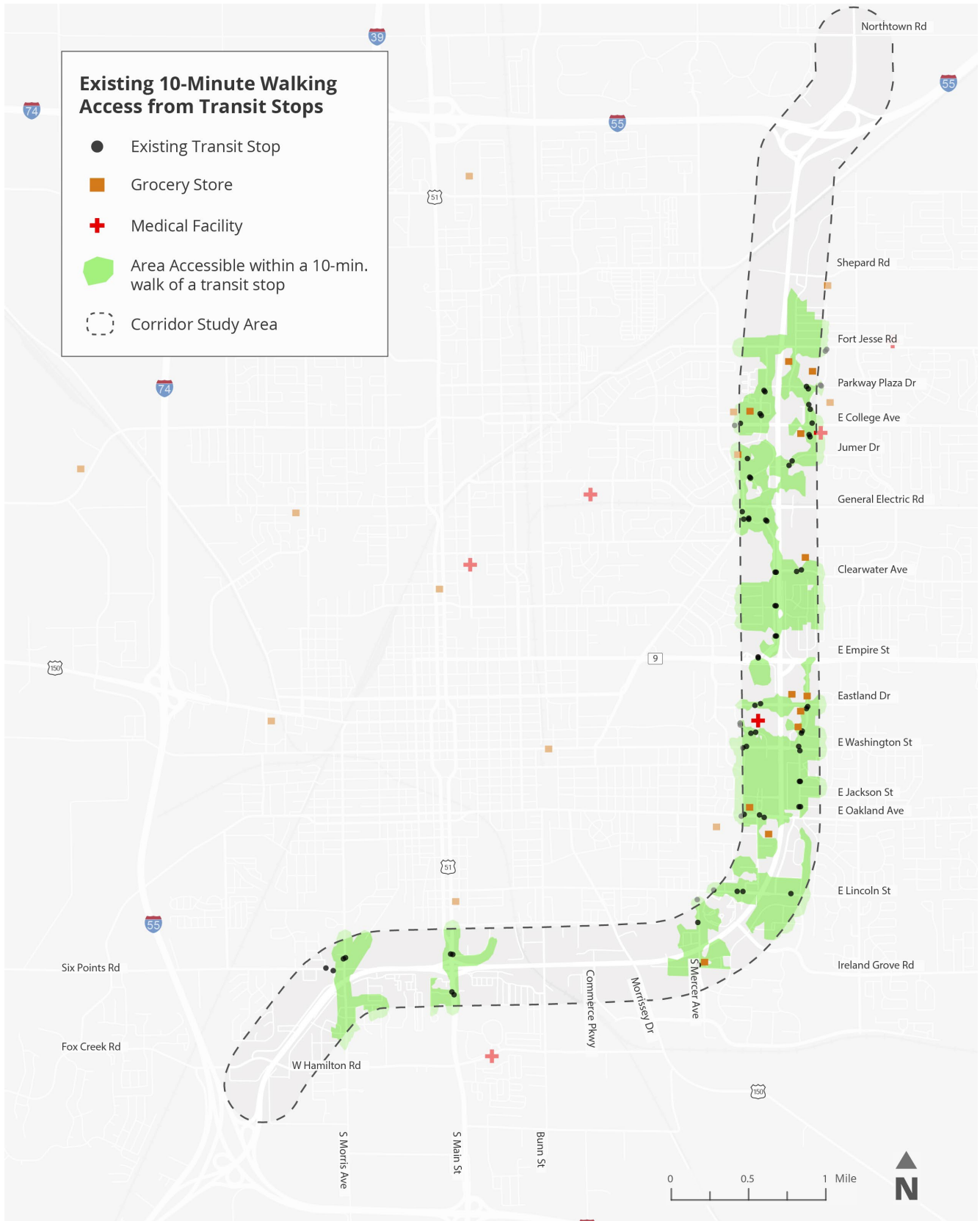


Figure 37: Existing 10-Minute Walking Access from Transit Stops

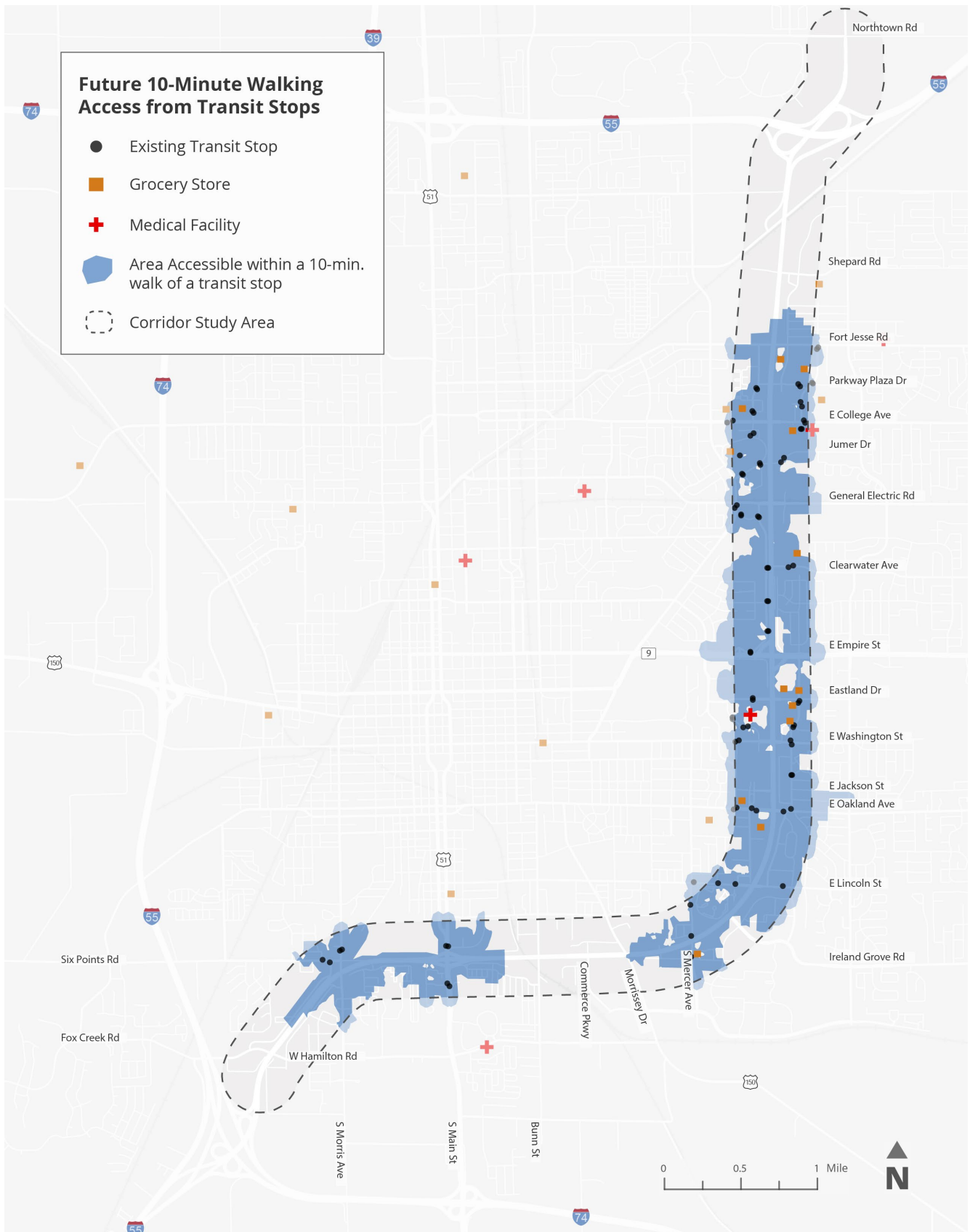


Figure 38: Future 10-Minute Walking Access from Transit Stops

Pedestrian Access Impacts

To further quantify how operationalizing network design guidance could impact overall pedestrian access in the corridor study area, the project team developed a geospatial analysis to identify where impacts could be most profound. The corridor study area was divided into 100-meter squares, and an analysis was run measuring the number of other squares, grocery stores, and jobs currently accessible from each square and the number that would be accessible with network improvements.

15-Minute Walking Access

Figures 39 and 40 show, for each square, the total number of squares that can be reached via a 15-minute walk for both existing and future network conditions.

Grocery Store Access

Figures 41 and 42 show, for each square, the total number of grocery stores that can be reached via a 15-minute walk for both existing and future network conditions. In existing conditions, a highly limited share of the corridor study area can access, at most, one or two grocery stores. In future conditions, a much larger share of the corridor study area can access at least one grocery store, if not several grocery stores.

Jobs Access

Figures 43 and 44 show, for each square, the total number of jobs that can be reached via a 15-minute walk for both existing and future network conditions. In future conditions, a larger share of the corridor study area can access at least some jobs, and almost every developed portion of the corridor study area can access more jobs.

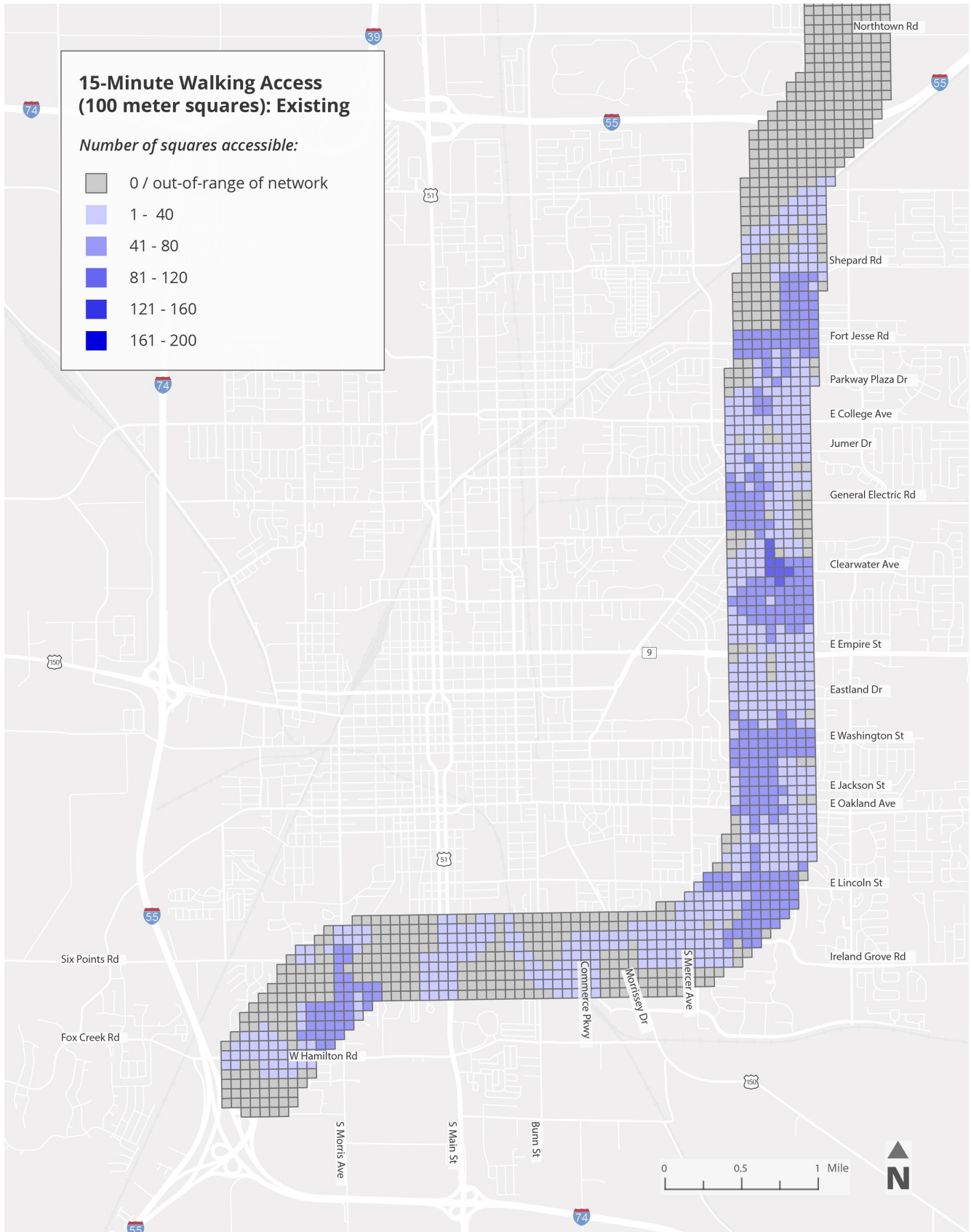


Figure 39: 15-Minute Walking Access (100-meter squares): Existing

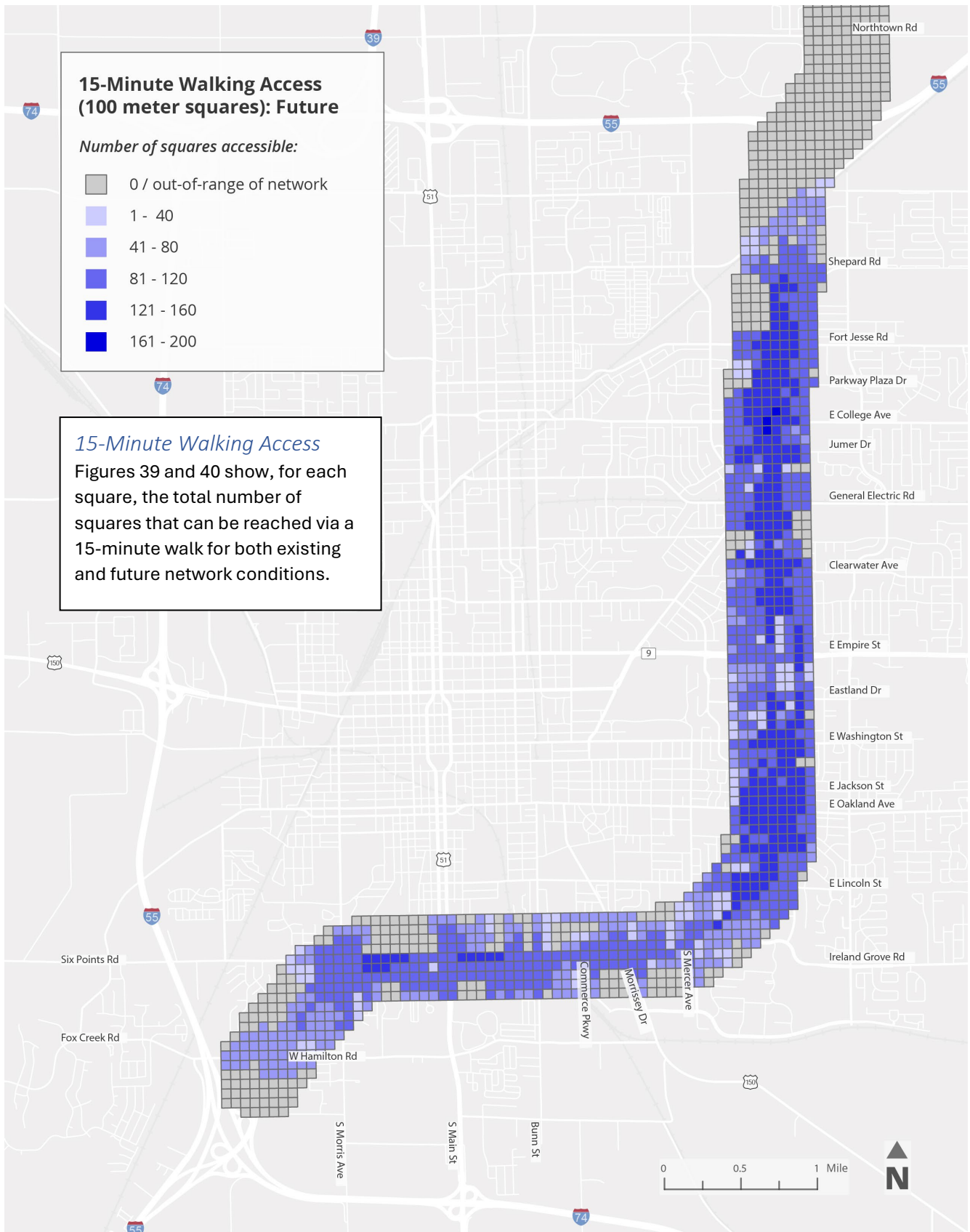


Figure 40: 15-Minute Walking Access (100-meter squares): Future

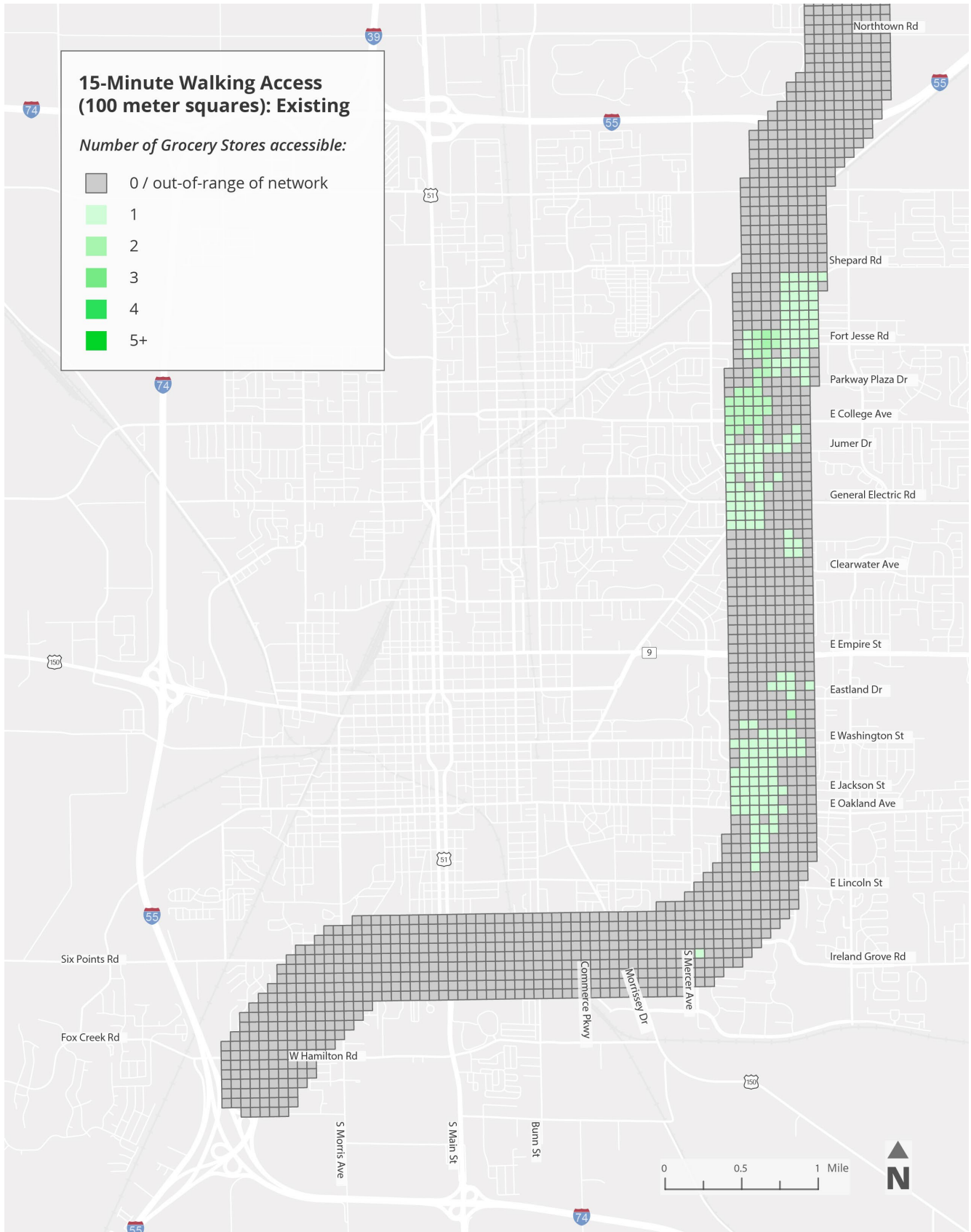


Figure 41: 15-Minute Walking Access (100-meter squares): Existing Grocery Store Access

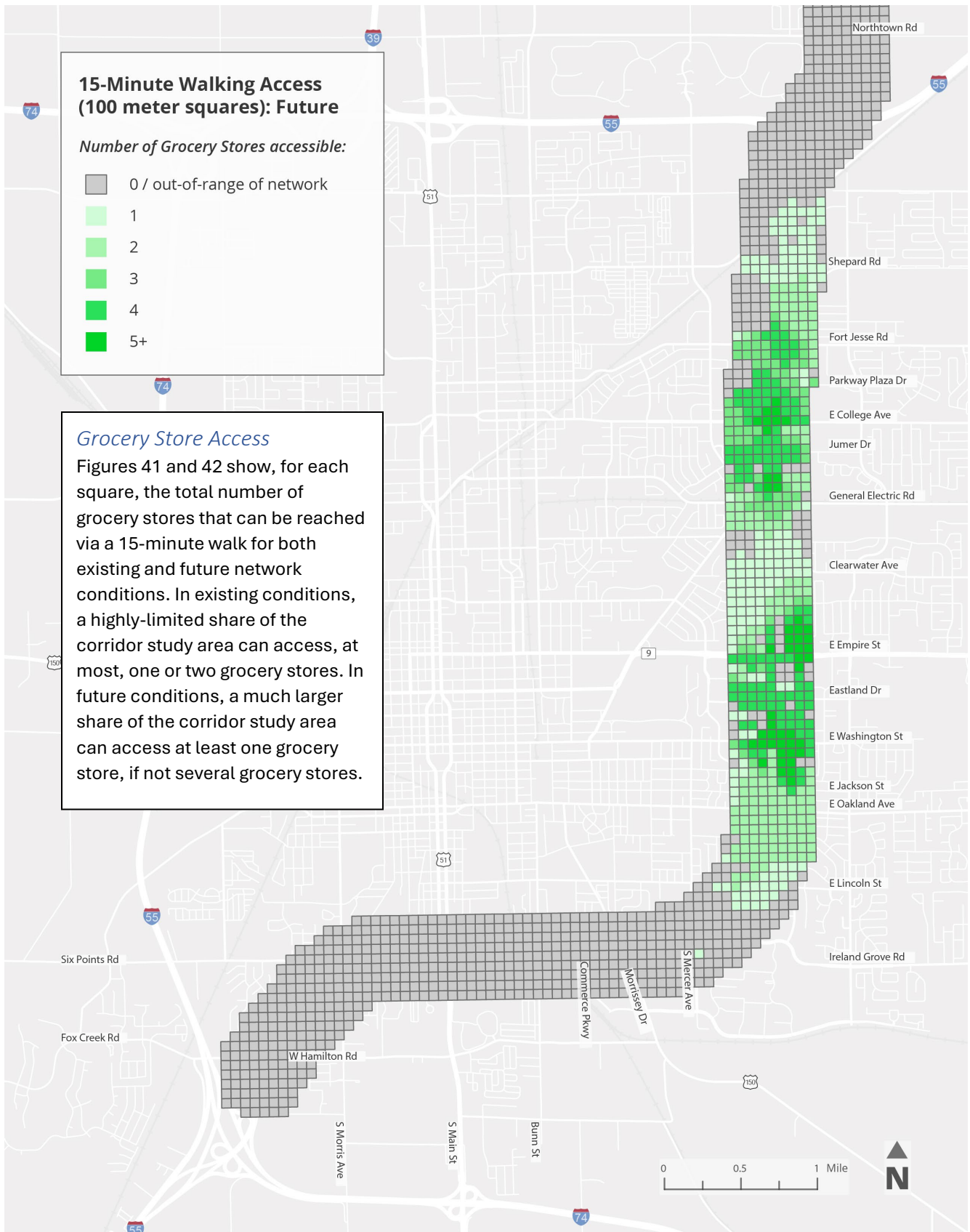


Figure 42: 15-Minute Walking Access (100-meter squares): Future Grocery Store Access

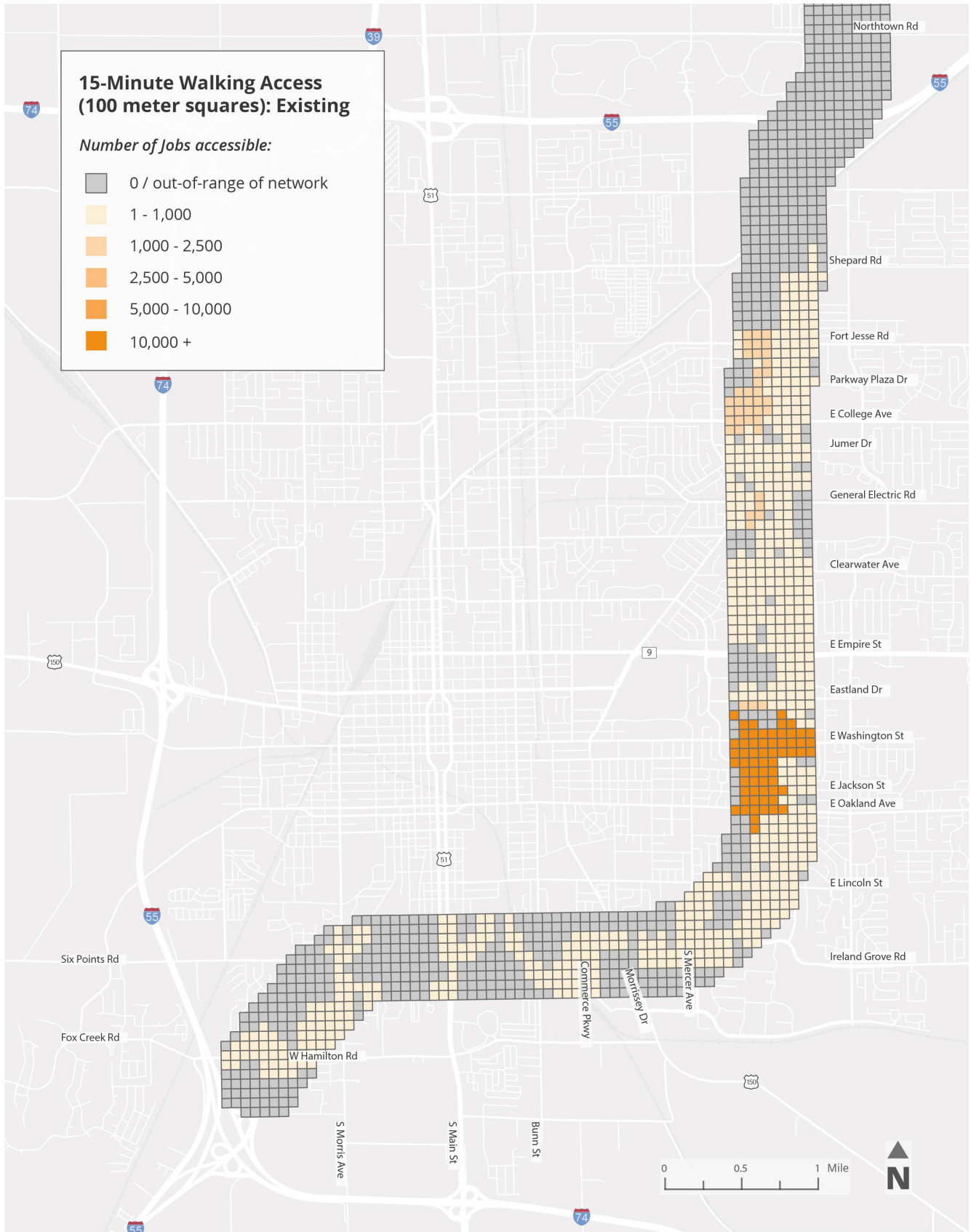


Figure 43: 15-Minute Walking Access (100-meter squares): Existing Job Access

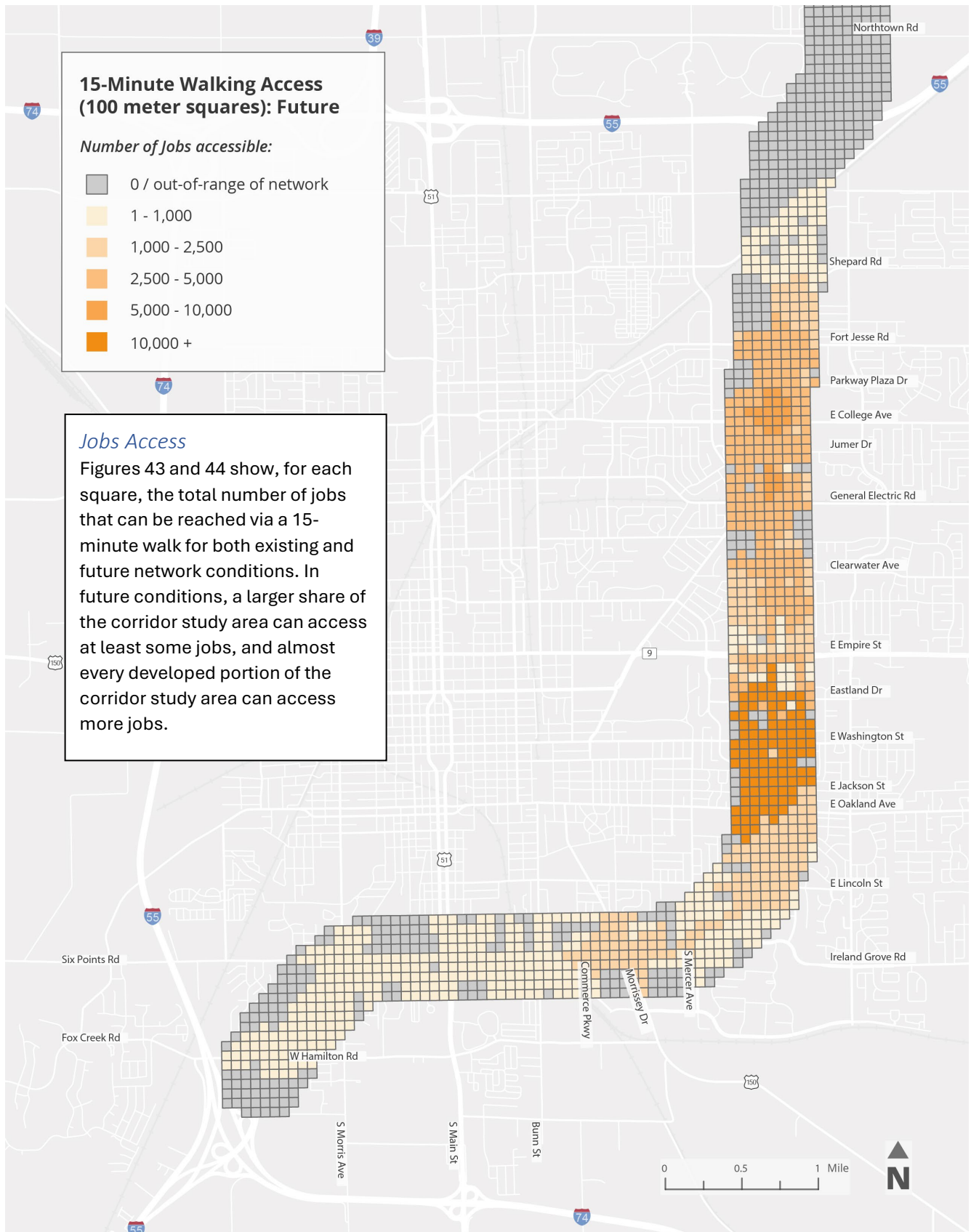


Figure 44: 15-Minute Walking Access (100-meter squares): Future Job Access

Corridor Bus Route Impact Analysis

The question has been raised several times by community and Project Steering Committee members throughout the course of the Reinvent Veterans Parkway project about whether a Connect Transit bus route along Veterans Parkway could improve overall transit access. To begin understanding potential impacts, a hypothetical bus route was drafted running along Veterans Parkway from Morris Avenue to Shepard Road, with stops in each direction at eighteen intersections serving major destinations. Findings included:

- These additional 36 transit stops immediately on the corridor would further increase the share of the corridor within a 5-minute walk of a transit stop from 37 percent to 50 percent (36 percent increase).
- These additional transit stops would provide moderate improvements in grocery store access (11 to 13 stores within 5 minutes of a stop). Improvements for 10- and 15-minute walksheds are relatively limited.
- These additional transit stops would provide moderate improvements to jobs access (+2,000 jobs within 5 minutes of a transit stop). Improvements for 10- and 15-minute walksheds are relatively limited.

Table 26: Corridor Bus Route Impacts Summary

	Future Network	Future Network with Hypothetical Bus Route	Percent Increase with Hypothetical Bus Route
Transit Stop Access			
Share of corridor study area within 5-minute walk of transit stop	37%	50%	36.3%
Share of corridor study area within 10-minute walk of transit stop	56%	69%	23.2%
Share of corridor study area within 15-minute walk of transit stop	65%	76%	16.1%
Grocery Store Access via Transit			
Number of grocery stores accessible within 5-minute walk of transit	11	13	18.2%
Number of grocery stores accessible within 10-minute walk of transit	13	14	7.7%
Number of grocery stores accessible within 15-minute walk of transit	13	14	7.7%
Job Access via Transit			
Number of jobs accessible within 5-minute walk of transit	13,042	15,053	15.4%
Number of jobs accessible within 10-minute walk of transit	27,730	28,848	4.0%
Number of jobs accessible within 15-minute walk of transit	28,419	29,145	2.6%

This analysis did not take into consideration how a hypothetical route and new stops would ultimately reduce total transit trip times compared to existing service. Further modeling is required. Additionally, while transit stops immediately along the corridor would provide strong access to jobs and essential services like grocery stores, they would provide substantially less access to existing residential areas, potentially limiting the utility for people to access the service from their homes. A service with profound destination access but limited origin access is likely to have limited utility. This paradigm could shift with the future addition of more housing along the corridor.

6.0 Local Pollution & GHG Impacts

6.1. Methodology

To estimate the effects of each alternative on air quality, the Environmental Protection Agency's (EPA) Motor Vehicle Emissions Simulator (MOVES4) emissions model was used to obtain pollutant emission factors, in grams-per-hour, for free-flow links for key study intersections. The vehicular volumes, classifications, and speeds used in MOVES4 were based on the project's future volume projections described in Section 4. The estimation of peak hour emissions were based on average speeds that incorporated idle times during intersection delay. For analysis purposes, traffic volumes were classified as automobiles, buses, medium trucks, and heavy trucks. Automobiles accounted for approximately 99% of total volumes.

Inputs pertaining to anti-tampering programs, age distribution, meteorology, etc., were obtained from IDOT. The pollutant processes included running exhaust and crankcase running exhaust for carbon monoxide (CO), particulate matter of 10 micrometers or less (PM₁₀), particulate matter of 2.5 micrometers or less (PM_{2.5}), and carbon dioxide equivalents (CO_{2e}), as well as brake and tire wear for 24-hour modeling periods for PM₁₀ and PM_{2.5}. These pollutants are representative of typical vehicle emissions in urban areas, accounting for emissions from vehicles using gasoline, diesel, ethanol, electricity, and compressed natural gas as fuel. CO is commonly associated with gasoline-powered vehicles, while particulate matter is associated with diesel-powered vehicles. CO_{2e} is a common metric that allows six gases with different global warming potentials (potential to trap heat in atmosphere) to be added together and compared. The calculations use weighting factors for the different gases. Calculation of CO_{2e} makes it easier to compare the impacts of different activities or alternatives.

Localized increases in CO and PM levels may result from increased vehicular traffic and differing traffic patterns in the study area due to the proposed alternatives. Under all alternatives, MOVES4 was run for the weekday evening peak hour (4:30-5:30 PM), when vehicular volumes are projected to be highest¹⁹. MOVES4 was used to calculate emissions for 4 different scenarios: existing conditions, Model 1 (No-Build Alternative), Model 2 (Alternatives A1, A2, C), and Model 3 (Alternatives B1, B2). Two key intersections were selected for analysis and confirmed with the Project Steering Committee. Veterans Parkway's intersection with Vernon Avenue / General Electric Road was selected because it has the highest amount of vehicular traffic at an intersection outside of Empire Street²⁰. The intersection of Veterans Parkway and Ireland Grove Road was selected due to its proximity to a nearby residential community.

¹⁹ To provide a conservative estimate of emissions due to idling in winter conditions, the MOVES4 model was run assuming a January 1st date.

²⁰ The MOVES4 model requires a defined geometry for future conditions at subject intersections. As the outcome of the separate IDOT study for the Veterans Parkway and Empire Street intersection is yet to be determined, the intersection was excluded from consideration.

6.2 Existing Conditions

Emissions were estimated for mobile sources at the study intersections as they exist today, using volumes and speeds calculated using Synchro12. Table 27: Existing Conditions summarizes the estimated existing emissions at each study intersection.

Table 27: Existing Conditions

Intersection	Total Vehicular Volume	Emissions (Weekday Evening Peak Hour)			
		CO (lbs/hr)	PM ₁₀ (g/hr)	PM _{2.5} (g/hr)	CO ₂ e (lbs/hr)
Vernon Avenue / GE Road	6,295	15.40	7.43	6.67	
Ireland Grove Rd	3,280	5.65	3.13	2.82	
Total	9,575	21.05	10.56	9.49	1,950.73

Model 1 (No-Build Alternative)

Traffic conditions, including delays and volumes, for the 2045 analysis year were determined using Synchro12 to assess future traffic operations during the evening peak hour. Details of Model 1 are discussed in Section 4. The percentage change of emissions between 2025 and 2045 are shown in Table 28: Model 1 (No-Build Alternative) vs. Existing Conditions.

Table 28: Model 1 (No-Build Alternative)

Intersection	Total Vehicular Volume	Emissions (Weekday Evening Peak Hour)			
		CO (lbs/hr)	PM ₁₀ (g/hr)	PM _{2.5} (g/hr)	CO ₂ e (lbs/hr)
Vernon Avenue / GE Road	7,215	5.12	2.78	2.46	
Ireland Grove Road	3,725	1.87	1.04	0.92	
Total	10,940	6.99	3.83	3.39	1,685.35

Table 29: Model 1 (No-Build Alternative) vs. Existing Conditions

Intersection	% Emissions Difference, Model 1 vs. Existing Conditions			
	CO	PM ₁₀	PM _{2.5}	CO ₂ e
Vernon Avenue / GE Road	-67%	-63%	-63%	
Ireland Grove Road	-67%	-67%	-67%	
Total	-67%	-64%	-64%	-14%

Compared to existing conditions, the estimated emissions from Model 1 are projected to be lower. Between 2025 and 2045, the MOVES4 analysis shows that future vehicle emissions would be expected to decrease by approximately 67% for CO, 64% for PM₁₀, 64% for PM_{2.5}, and 14% for CO₂e. This decrease can be attributed to an anticipated shift to higher efficiency vehicles, which produce fewer emissions than older generation vehicles. Over time, it is expected that passenger vehicles would utilize lower emission fuel types such as electric and ethanol over traditional gasoline and diesel fuels. To account for this downward shift in average emissions, Models 2 and 3 will be compared to Model 1 to determine the effects of the alternatives on future emissions.

Model 2

Traffic delays were generated for Model 2 using Synchro12 to reflect changes to intersection geometry and signal timings promoting pedestrian safety, as detailed in Section 4. As noted in that section, projected peak hour volumes are assumed to be the same as in the No-Build condition. As such, shifts in emissions are projected to be the result of changes to vehicular delay. Total emissions for the study intersections for Model 2 are shown in Table 30: Model 2.

Table 30: Model 2

Intersection	Total Vehicular Volume	Emissions (Weekday Evening Peak Hour)			
		CO (lbs/hr)	PM ₁₀ (g/hr)	PM _{2.5} (g/hr)	CO _{2e} (lbs/hr)
Vernon Avenue / GE Road	7,215	5.47	2.99	2.65	
Ireland Grove Road	3,725	2.07	1.14	0.94	
Total	10,940	7.53	4.13	3.59	1,807.69

Table 31: Model 2 vs. Model 1 (No-Build Alternative)

Intersection	% Emissions Difference, Model 2 vs. Model 1			
	CO	PM ₁₀	PM _{2.5}	CO _{2e}
Vernon Avenue / GE Road	+6.8%	+7.5%	+7.5%	
Ireland Grove Road	+10.4%	+9.4%	+2.1%	
Total	+7.7%	+8.0%	+6.0%	+7.3%

As shown in Table 31: Model 2 vs. Model 1 (No-Build Alternative), Model 2 is estimated to result in a 7.7% increase in CO emissions, 8.0% increase in PM₁₀ emissions, 6.0% increase in PM_{2.5} emissions, and a 7.3% increase in CO_{2e} emissions compared to Model 1.

Model 3

Traffic delays were generated for Model 3 using Synchro12 to reflect changes to intersection geometry and signal timings promoting pedestrian safety, as detailed in Section 4. As noted in that section, projected peak hour volumes differ from the No-Build condition due to the assumed redistribution of traffic due to the reduction of travel lanes on Veterans Parkway. As such, shifts in emissions are projected to be the result of a combination of changes to vehicular delay and total vehicular volumes. Total emissions for Model 3 are shown in Table 32: Model 3.

Table 32: Model 3

Intersection	Total Vehicular Volume	Emissions (Weekday Evening Peak Hour)			
		CO (lbs/hr)	PM ₁₀ (g/hr)	PM _{2.5} (g/hr)	CO _{2e} (lbs/hr)
Vernon Avenue / GE Road	6,180	5.26	2.92	2.58	
Ireland Grove Road	3,410	2.03	1.11	0.98	
Total	9,590	7.29	4.03	3.56	1,750.19

Table 33: Model 3 vs. Model 1 (No-Build Alternative)

Intersection	% Emissions Difference, Model 3 vs. Model 1			
	CO	PM ₁₀	PM _{2.5}	CO _{2e}
Vernon Avenue / GE Road	+2.8%	+4.9%	+4.9%	
Ireland Grove Road	+8.7%	+6.2%	+6.2%	
Total	+4.3%	+5.2%	+5.2%	+3.8%

As shown in Table 33: Model 3 vs. Model 1 (No-Build Alternative), Model 3 is estimated to result in a 4.3% increase in CO emissions, 5.2% increase in PM₁₀ emissions, 5.2% increase in PM_{2.5} emissions, and a 3.8% increase in CO_{2e} emissions compared to Model 1. “

6.3 Discussion

Table 34: Model 2 and Model 3 Compared shows the difference in emissions between each Model, as compared to the No-Build Alternative.

Table 34: Model 2 and Model 3 Compared

Intersection	Total Vehicular Volume	Model	% Emissions difference compared to Model 1			
			CO	PM ₁₀	PM _{2.5}	CO _{2e}
Vernon Avenue / GE Road	7,215	2	+6.8%	+7.5%	+7.5%	
	6,180	3	+2.8%	+4.9%	+4.9%	
Ireland Grove Road	3,725	2	+10.4%	+9.4%	+2.1%	
	3,410	3	+8.7%	+6.2%	+6.2%	
Total	10,940	2	+7.7%	+8.0%	+6.0%	+7.3%
	9,590	3	+4.3%	+5.2%	+5.2%	+3.8%

For all criteria pollutants, Model 3 is expected to result in slightly fewer total emissions than Model 2. This is likely a result of lower overall intersection volumes due to diversions, despite lower projected travel speeds. Both Model 2 and Model 3 are estimated to result in an increase in emissions from Model 1. However, the difference in emissions between both future models and the No-build condition should be considered relatively low. As noted previously, despite the projected increases in emissions relative to the No-Build condition, both Model 2 and Model 3 are projected to have fewer total emissions than the existing condition.

7.0 Disadvantaged Communities Impacts

Veterans Parkway's high-auto reliance nature puts communities who have lower vehicle access and higher reliance on transit, walking, and cycling at a current disadvantage. This includes communities with higher rates of residents with mobility disabilities for whom driving is more difficult or not feasible. Communities with a higher share of residents over age 65 also may face disadvantages due to mobility disabilities that may make driving infeasible and/or may make walking, cycling, or taking transit more cumbersome. Communities with lower levels of educational attainment also face an advantage due to a more limited number of jobs they may be qualified for.

The proposed pedestrian, bicycle, and transit network improvements as well as roadway design alternatives all feature substantial upgrades in safety and access for people not traveling via a personal vehicle. These improvements should be expected to have a disproportionate impact on disadvantaged communities. The higher the positive impact on pedestrian, bicycle, and transit safety and access, the higher the positive impact on disadvantaged communities. Analyses in Section 5.0 quantify these impacts on disadvantaged communities.

8.0 Land Use and Economic Development Impacts

8.1. Complete Streets Impacts

While research on the economic impacts of complete streets is relatively limited for corridors that match Veterans Parkway's precedent, research on the most-comparable corridors generally indicates strong potential for positive economic impacts. For instance, in Indianapolis, the Indianapolis Cultural Trail focused on a series of pedestrian and bicycle improvements as well as vehicle lane re-purposing. In the first seven years since its completion, the Indianapolis Cultural Trail generated over \$300 million in new development, including retail, office, and residential construction. Since then, it's estimated that the total impact has surpassed \$1 billion and created more than 11,000 jobs.²¹ Meanwhile, researchers from the University of Washington reviewed sales data for retail businesses located adjacent to seven road safety projects in Seattle. Comparing streets with safety interventions to similar streets without safety interventions, the researchers found no adverse impacts.²² Finally, research has found increased walkability is associated with market-value increases for office, retail, and residential properties.²³

Employee Access Impacts

Healthy businesses rely on a large labor market pool with reliable access to transportation. Improving reliable access to transportation for residents in the region can boost the success of corridor businesses. Research indicates that walking and cycling improvements can enhance access to education and employment opportunities, particularly for lower-wage employees who have more-limited access to vehicles. Higher access for non-drivers can increase the labor pool, which can reduce business costs and increase productivity.²⁴

Peak Travel Time Impacts

Research indicates customer convenience in accessing a retail destination can play a major role in a store's market share.²⁵ Changes in vehicle travel time and congestion are projected to be most acute during the morning and afternoon commute peaks. For Veterans Parkway, existing peak travel times are 6:00-9:00am and 3:00-6:00pm on weekdays. According to market research, the highest-traffic hours for retail destinations tend to be 10:00am to 6:00pm on weekends, 11:00am to 2:00pm on weekdays, 4:00pm to 6:00pm on weekdays.²⁶ This research indicates that increased travel times and congestion may overlap with one key period of retail activity but not most.

Traffic Volume Impacts

One measure considered by retailers (particularly major national retailers) when identifying corridors to locate is traffic volumes. Table 27 highlights research summarizing approximate vehicles/day targets for a selection of major national retailers. These targets should not be considered precise, but instead, they offer some insight into how traffic volumes may impact retail site selection. Veterans Parkway is currently the highest-volume surface roadway in the region with more than 40,000 vehicles/day at its busiest segments. Traffic modeling for lane-reduction alternatives (B1 and B2) projects up to approximately a 5.5 percent decline in overall traffic volumes on Veterans Parkway in 2045 compared to 2025. Even with moderate reductions in peak traffic volumes, Veterans Parkway

²¹ "Indianapolis Cultural Trail," accessed October 21, 2025, <https://indyculturaltrail.org/wp-content/uploads/2020/02/ICT-2.0-FAQ.pdf>.

²² Daniel R Osterhage et al., "Economic impact on local businesses of road safety improvements in Seattle: implications for Vision Zero projects," *Injury Prevention* 30, (2024), <https://doi.org/10.1136/ip-2023-044934>.

²³ Gary Pivo and Jeffrey D. Fisher, "The Walkability Premium in Commercial Real Estate Investments," *Real Estate Economics* 39, no. 2 (2011), <https://doi.org/10.1111/j.1540-6229.2010.00296.x>.

²⁴ Todd Litman, "Evaluating Active Transport Benefits and Costs: Guide to Valuing Walking and Cycling Improvements and Encouragement Programs," Victoria Transport Policy Institute, (2025), <https://www.vtpi.org/nmt-tdm.pdf>.

²⁵ Guillermo Marshall and Tiago Pires, "Measuring the Impact of Travel Costs on Grocery Shopping," *The Economic Journal* 128, no. 614 (2017), <https://doi.org/10.1111/econj.12523>

²⁶ Allie Gratton, "Retail Peak Hours Are Critical in Driving Store Performance," StoreForce, June 7, 2021, <https://storeforcesolutions.com/blog-type/blog-post/retail-peak-hours-critical-in-driving-store-performance/>.

would remain the highest-volume surface roadway in the region, likely maintaining its status as a key attractor of major retailers and employers.

Table 35: Vehicle Volume Impact on Retailer Site Selection

Retailer	Typical VPD (vehicles/day)	Notes & source
Starbucks	~25,000–30,000 VPD (often cited ≥25k; some site studies reference 30k)	Starbucks emphasizes high visibility, signalized corners and drive-thru stacking; municipal Starbucks traffic studies and academic site-selection analyses cite 25–30k VPD as typical. (Barry Waite)
Dick’s Sporting Goods	~25,000–35,000+ VPD (anchors often cited in corridors >30k)	Sporting-goods anchors are usually targeted to major arterials/power centers with 30k+ AADT in many retail studies/market analyses. See big-box / trip-generation case studies. (ICSC)
TJ Maxx / HomeGoods (TJX brands)	~20,000–30,000 VPD	Department/soft-goods retailers typically look for strong corridor counts (many ICSC retailer profiles list ~20k+ as preferred). (ICSC)
Buffalo Wild Wings	~25,000–40,000+ VPD (many listings show 25k minimum; franchise/offering memos cite 30–40k for prime sites)	Restaurant/franchise materials and broker offering memos commonly show 25k as a baseline and 30–40k+ for high-performance sites. (Gallimore)
HomeGoods	~20,000–30,000 VPD	Often follows TJX playbook (strong corridor counts, power-center anchors). See ICSC retailer guides. (ICSC)
Aldi	~20,000 VPD (commonly cited minimum)	ICSC retailer entries for Aldi list minimums ~20k in many markets. (ICSC)
Walmart / Supercenters	~40,000–100,000+ VPD (varies hugely by market)	Walmart is a regional/destination anchor — needs much higher volumes and trade-area population; thresholds vary by urban vs rural. (Example market studies show 50k+ on primary arterials). (fcrevite.org)
Chipotle	~25,000–50,000 VPD on primary roads; smaller counts ok with strong trade area	QSRs often prefer 25k+ on the primary frontage but many rely more on drive-thru/pick-up behavior and local daytime population. (Hello LandBank)
CVS / Walgreens (pharmacies)	Prefer signalized, high-visibility intersections; often ~20,000+ VPD (site criteria stress signalized access, parking, and trade area)	Corporate location pages and municipal submittals emphasize high-traffic intersections and trade-area population rather than a single VPD number. (cvsparmacyrealty.com)

9.0 Utilities Impacts

9.1. Drainage

In June 2025, Terra Engineering conducted a desktop survey of existing drainage ditches as well as a GIS survey of below-ground stormwater infrastructure was conducted, and a memo with diagrams was prepared. The full memo can be found in Appendix C. Key takeaways include:

- Stormwater drainage is handled by a combination of ditches along the edge of the road, median ditches, roadway edge curb inlets, and median curb inlets. These conditions vary between corridor segments.
- At various points along the corridor, it is currently unclear whether depressions adjacent to the roadway are drainage ditches intended to convey stormwater or more simply grading for drainage away from the roadway.

Utilizing the currently available information, the project team believes that a policy compliant ditch is not feasible within the ROW for the proposed corridor segments design alternatives. As a result, the project team estimated costs for a composite sub-standard ditch with a closed system that could be used if the proposed shared-use path can drain towards the roadway (see Section 4.11). Properly assessing the full differentiating drainage impacts of the corridor segment design alternatives would take effort exceeding the current scope of this project and would require more data than is available at this time. Ultimately though, the project teams projects that any drainage impacts will be driven more by maintaining existing drainage patterns than by cost.

9.2. Power Supply

Bloomington and Normal staff have relayed that they are not aware of any special considerations for above-ground utilities. These utilities are generally located in IDOT ROW and not in exclusive easements. Electrical distribution lines run along most of the corridor on one or both sides between Greenwood Ave. and Old US Rt. 66:

- Greenwood Ave to Bunn St: North side
- Bunn St to Morrissey Dr: Both sides
- Morrissey Dr to Lincoln St: North side
- Lincoln St to Arcadia Dr: Both sides
- Arcadia Dr to College Ave: West side
- College Ave to Shepard Rd: East side
- Shepard Rd to Old US Rt. 66: Both sides

Additionally, Transmission Lines cross the corridor in three locations, including approximately 1,150' west of Bunn Drive, 650' west of Bunn Drive, and at Brickyard Drive.

It is not anticipated that corridor design alternatives will impact transmission lines. Electrical distribution lines would likely need to be relocated (at least partially) under all corridor segment design alternatives, although greater flexibility may exist in alternatives A2 and B2 to maintain existing placement.

10.0 Summary

10.1. Preliminary Design Alternatives Analysis

This report provides design interventions to improve intersection operations and safety, with particular impacts on people walking, cycling, or using transit. Further, this report outlines six corridor segment design alternatives with varying impacts on vehicle travel times, traffic diversion, safety improvements, landscaping opportunities, and costs. All design alternatives provide substantial access and safety improvements for people walking, cycling, and using transit. Alternative A1 provides the lowest-cost opportunity for segment redesign but offers lower overall safety benefits compared to Alternatives A2, B1, and B2. Alternatives A2 and B2 introduce substantial traffic operations impacts due to the inability to accommodate dual-left-turn lanes. Alternatives B1 and B2 introduce traffic diversions at peak volume periods, and further analysis is needed to fully understand the tangible outcome of those impacts. Alternative C provides the lowest-cost option but does not include the safety improvements that come with segment redesign. Finally, this report provides broader network design guidance, illustrates the impacts of implementing that guidance, and quantifies the access benefits of implementation for people walking and using transit.

Comparing Trade-Offs

Veterans Parkway is a corridor of competing needs, and no single solution comes without trade-offs. This report offers a range of interventions and alternatives that all conform to technical design standards, provide proven safety benefits, and provide for efficient traffic operations. Evaluating impacts and comparing trade-offs ultimately then requires identifying community priorities and an overall community vision for the future of the corridor.

10.2. Next Steps

The project team will collect public feedback on intersection interventions, corridor segment design alternatives, and network design guidance through a series of events in fall 2025. The project team will then work with the Project Steering Committee to review public feedback as well as the results of this report to develop revised alternatives as well as revised impact and feasibility analyses. These results will be published in a Refined Alternatives Report.

Appendix A: Safety Research

Table 36: Safety Impacts Research Summary

Intervention	Crash Modification Factor (CMF)	FHWA Proven Safety Countermeasures	Additional Research
Segments			
Lane Width Reduction	No relevant and/or applicable CMF		A study from Johns Hopkins University found that narrowing lanes on urban arterials (particularly in the 30–35 mph speed range) does not increase crashes but can in fact reduce them. It found no evidence that wider lanes are safer.
Increased Median Width	CMF No: 8704/8705 7.4% reduction all crashes 4.0% reduction all KABC crashes		
Add Street Trees	ODOT No.: BP31 10.0% reduction all crashes		Researchers at the University of Colorado mapped tree canopy and street-tree locations in Denver, finding that larger tree canopies were associated with fewer injuries/fatal and total crashes.
Install Sidewalks	CMF No: 11246 20.0% reduction pedestrian crashes in locations currently without sidewalks	Walkways: Sidewalks can reduce crashes involving pedestrians along roadways by 65-89%	A study investigating the correlation between pedestrian crashes and sidewalk gaps in Central Florida found that the likelihood of a pedestrian crash along roadways with no sidewalk is 1.67 times greater than the likelihood of a crash with the presence of a sidewalk.
Install Shared-Use Path	CMF No: 9250 25.0% reduction vehicle/bicycle crashes		
Lower Speed Limit	CMF No: 11288/ 11289 14.4% reduction all KABC crashes 30.0% reduction all KA crashes	Appropriate Speed Limits for All Road Users	A study in Belgium analyzed crashes after the Flemish government lowered speed limits from 90 km/h to 70 km/h on many of its highways. The analyses showed a 5% decrease in the crash rates after the speed limit restriction, and a 33% decrease in crashes involving serious injuries and fatalities.
Road Diets (Roadway Reconfiguration)	No relevant and/or applicable CMF		A study from the UCLA Institute of Transportation Studies compared collisions on five high-traffic-volume road diet corridors with 16 similar multilane, untreated street segments. It found that collisions, injuries, and deaths were lower by 31.2% to 100%, depending on the measure, whereas traffic speeds were lower by about 6.7% (peak) to 7.9% (off-peak). The study concluded that in Los Angeles higher-traffic-volume road diets appeared to significantly increase safety with only minor effects on traffic speeds.

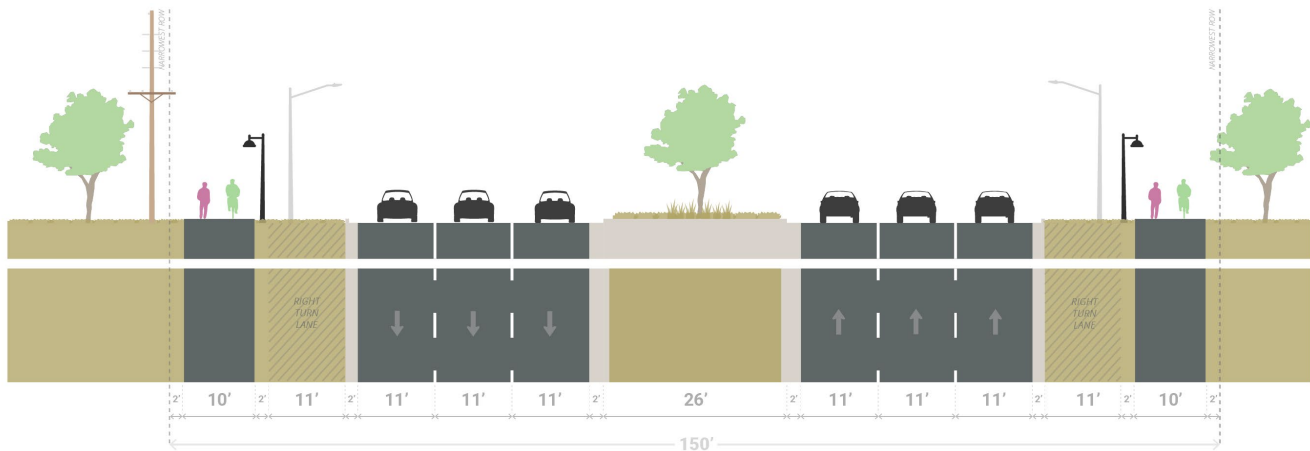
Intervention	Crash Modification Factor (CMF)	FHWA Proven Safety Countermeasures	Additional Research
Intersections			
High-Visibility Crosswalks	CMF No: 4123 40.0% reduction pedestrian crashes	Crosswalk Visibility Enhancements: Can reduce pedestrian injury crashes up to 40%	
Marked Crosswalks at All Legs	No relevant and/or applicable CMF		
Grade-Separated Ped/Bike Crossing	No relevant and/or applicable CMF		A research study in Tokyo, Japan, evaluated before-and-after crashes at 31 locations and found substantial reductions in pedestrian crossing collisions after grade-separated facilities were installed, but an increase in non-related crashes. Pedestrian perception of convenience and safety, and subsequent utilization, are key factors in determining effectiveness of the grade-separated facility.
Reducing Pedestrian Crossing Distance	CMF No: 133 30.0% reduction all crashes		Crossings where recent collisions occurred were longer, on average, than crossings overall. For every 1-ft increase in crossing distance, the probability that a collision has occurred increased by 0.8% in Paris, 2.11% in San Francisco, and 1.8% in Irvine.
Reducing Corner Turning Radii	CMF No: 8498/8496 59.0% reduction all crashes 44.0% reduction pedestrian crashes		An FHWA study analyzing a variety of right-turn lane types and characteristics across intersections in Oregon, Virginia, and Washington found a statistically significant relationship between pedestrian crashes and right-turn lane curb radii. The study further found that right-turn speed is a function of curb radius.
Removing Right-Turn Lanes	No relevant and/or applicable CMF		According to a study from Purdue University, exclusive right-turn lanes generally reduce crash frequency, especially at intersections with lower speed limits and with signal control. Their safety impact varies by roadway type, design speed, turn radius, and county context.
Removing Right Turn Slip Lanes	No relevant and/or applicable CMF		A study in Zunyi, China investigated the impact of channelized right turns on pedestrian safety by comparing non-channelized right-only lanes, non-channelized right-through lanes, and channelized right-turn lanes. It found that channelized right turn lanes increase pedestrian risks from different safety dimensions, especially at nighttime.

Intervention	Crash Modification Factor (CMF)	FHWA Proven Safety Countermeasures	Additional Research
Positive Offset Turn Lanes	CMF No: 6095 33.8% reduction all crashes 35.6% reduction all KABC crashes		
Intersection Lighting	CMF No.: 436 42% reduction ABC nighttime vehicle/pedestrian crashes	Crosswalk Visibility Enhancements: Can reduce pedestrian crashes up to 42%	
Pedestrian Hybrid Beacons	CMF No.: 9020/2911/2917 54.7% reduction vehicle/pedestrian crashes (minor arterials) 0.28.8% reduction all crashes (prior condition: minor-road stop-controlled intersection) 15.1% reduction KABC crashes (prior condition: minor-road stop-controlled intersection)	Pedestrian Hybrid Beacons: 55% reduction in pedestrian crashes 29% reduction in total crashes 15% reduction in fatal and serious injury crashes	
Rectangular Rapid Flashing Beacons (RRFB)	CMF No.: 9024 47.4% reduction vehicle/pedestrian crashes	Rectangular Rapid Flashing Beacons (RRFB): Can reduce crashes up to 47% for pedestrian crashes	
Signal Timing			
Adaptive Signal Control	CMF No: 7922/10559 19.3% reduction all angle crashes 5.2% reduction all crashes		
Single-Phase Pedestrian Crossing	No relevant and/or applicable CMF		
Leading Pedestrian Interval	CMF No: 9901/9903/9918 10.0% reduction all crashes 19.0% reduction pedestrian crashes 13.0% reduction vehicle/pedestrian crashes	Leading Pedestrian Interval: 13% reduction in pedestrian-vehicle injury crashes at intersections	IDOT BDE Chapter 17: "Leading pedestrian intervals (LPI) at signalized intersections are a low-cost pedestrian safety countermeasure that may be considered for use at urban and suburban locations. LPI consists of displaying the walk symbol to pedestrians several seconds ahead of parallel vehicular traffic receiving a green signal allowing pedestrians a 'head start' to occupy the crosswalk and increase their visibility to both right-turning and left-turning drivers. One downside to LPI is that it potentially creates increased vehicular delay and queues at the intersection."

Appendix B: Initial Design Alternatives

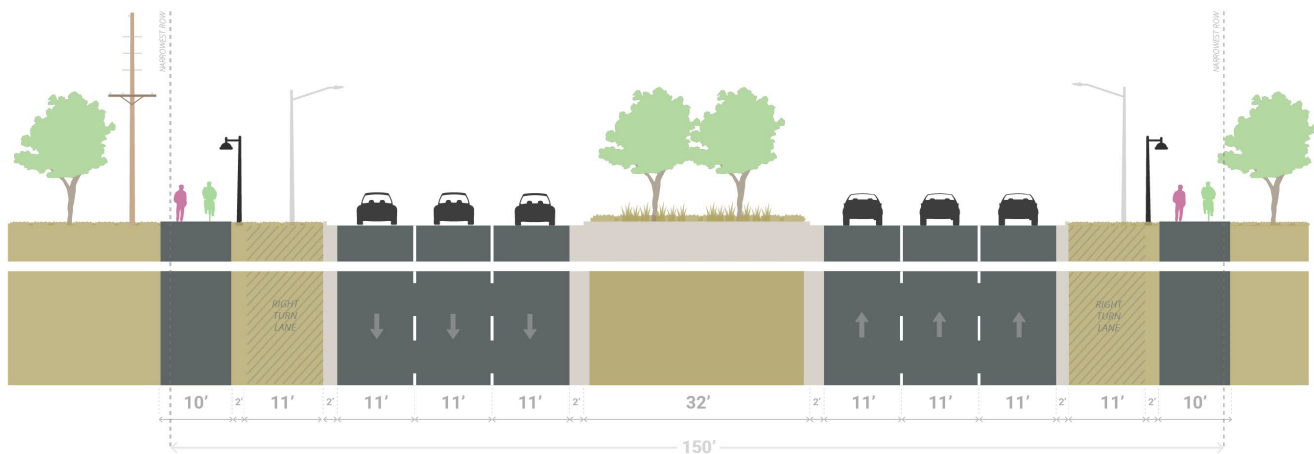
Concept A1: Adjusted Existing

This concept makes relatively modest adjustments to the existing cross section, including narrowing lane widths, expanding the raised portion of the median, and adding a shared-use path. These adjustments expand median planting space, help naturally enforce posted speed limits, and establish more space along corridor edges for plantings and/or amenities such as shared-use paths.



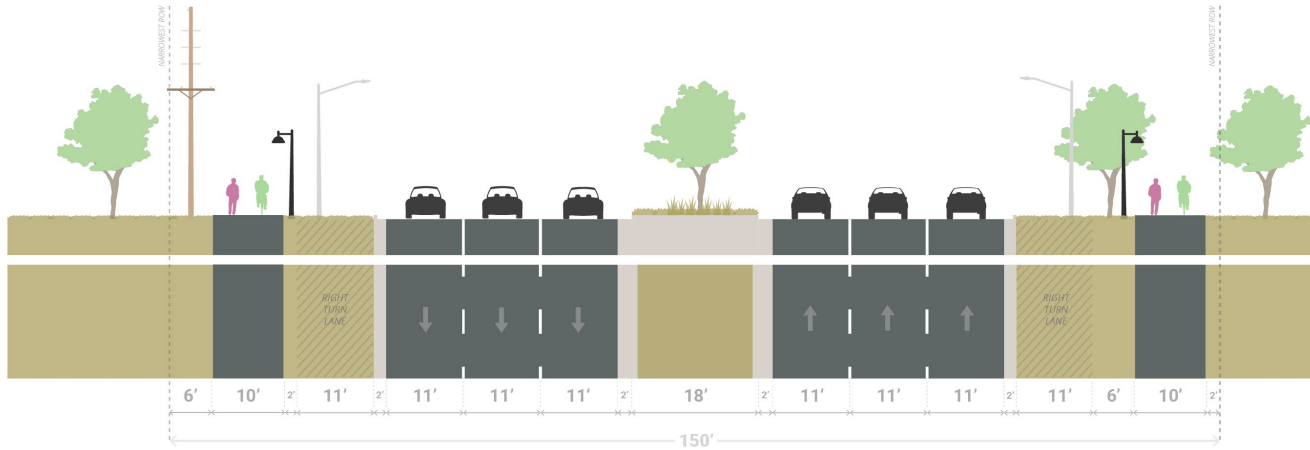
Concept A2: Adjusted Existing, Preserve Curbs

This concept makes the same relatively modest adjustments as Concept A1 but leaves in place the curbs at the outside edges of the roadway, which could substantially reduce stormwater management reconstruction costs. However, amenities beyond those curbs may become constrained at the narrowest portions of the corridor.



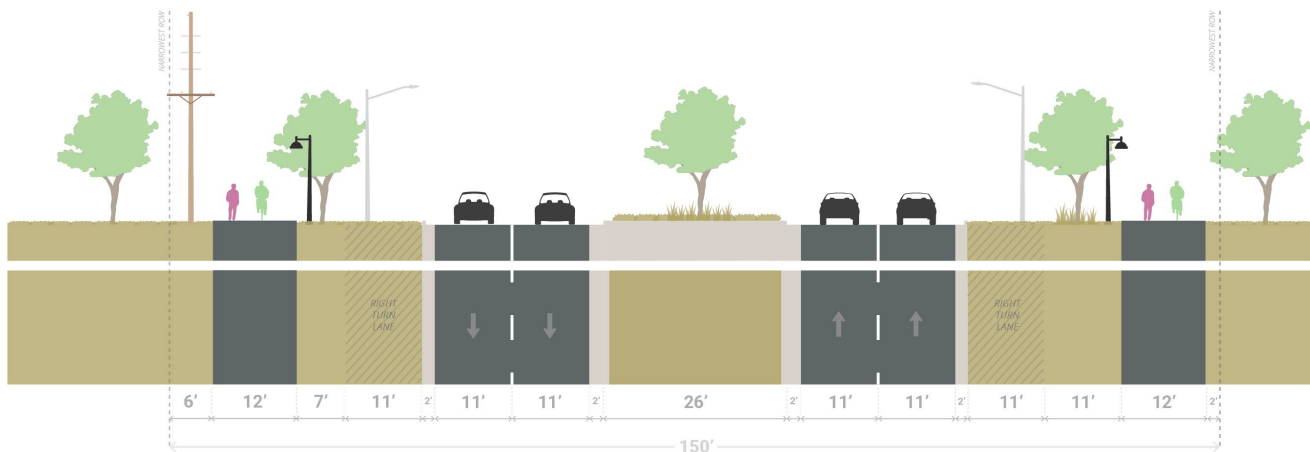
Concept A3: Adjusted Existing, Narrow Median

This concept demonstrates the narrowest median width per IDOT standards. A narrower median reduces pedestrian crossing distances and establishes more space along corridor edges for plantings and/or amenities such as shared-use paths.



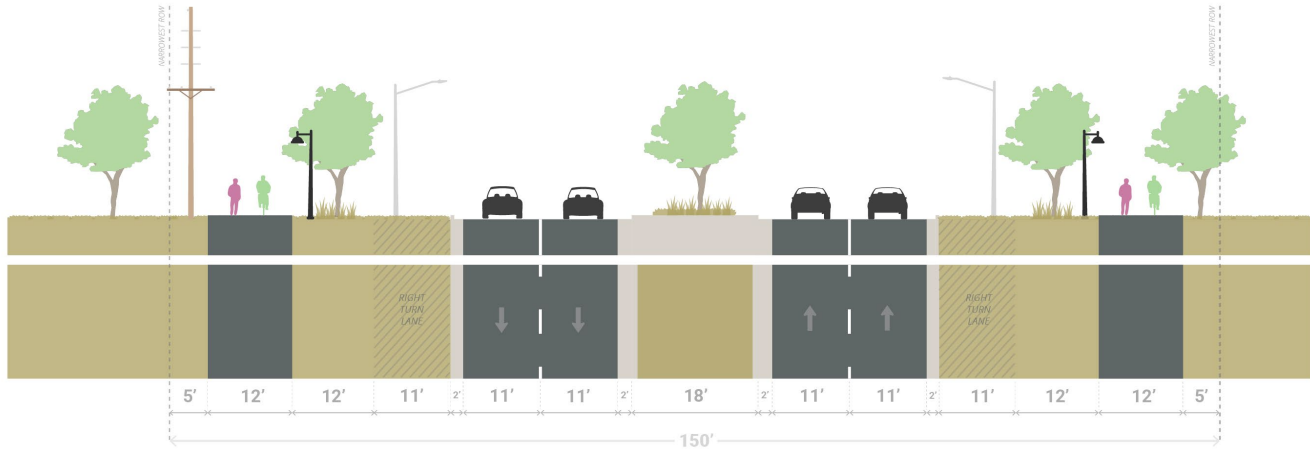
Concept B1: Lane Reduction, Existing Median Width

This concept removes one vehicle travel lane and includes median capacity for dual left turn lanes. These adjustments reduce pedestrian crossing distances and establish more space along corridor edges for plantings and/or amenities such as shared-use paths.



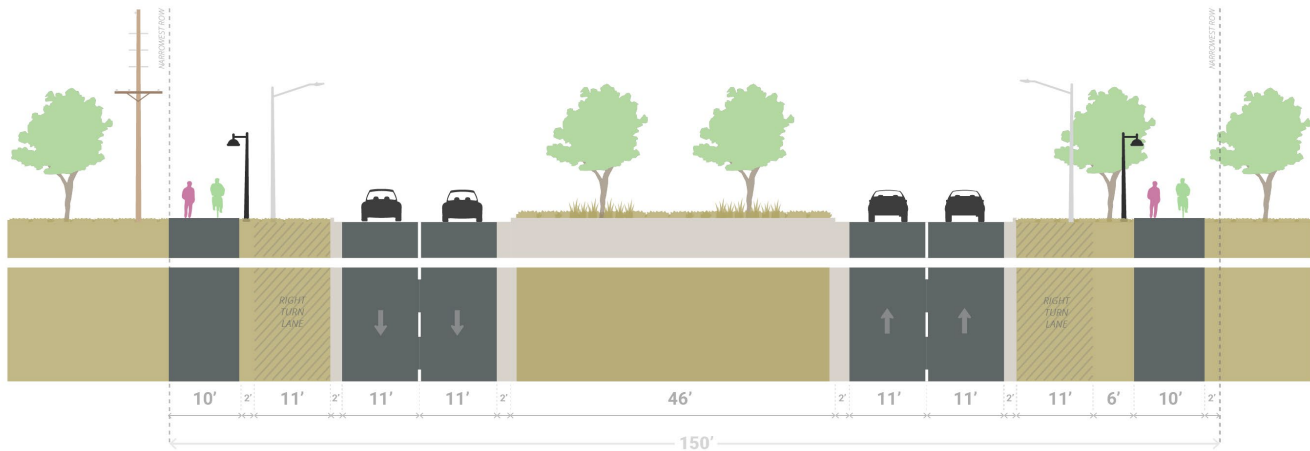
Concept B2: Lane Reduction, Narrow Median

This concept removes one vehicle travel lane and narrows the median to the minimum possible per standards, further reducing pedestrian crossing distances and establishing additional space along corridor edges for plantings and/or amenities such as shared-use paths.



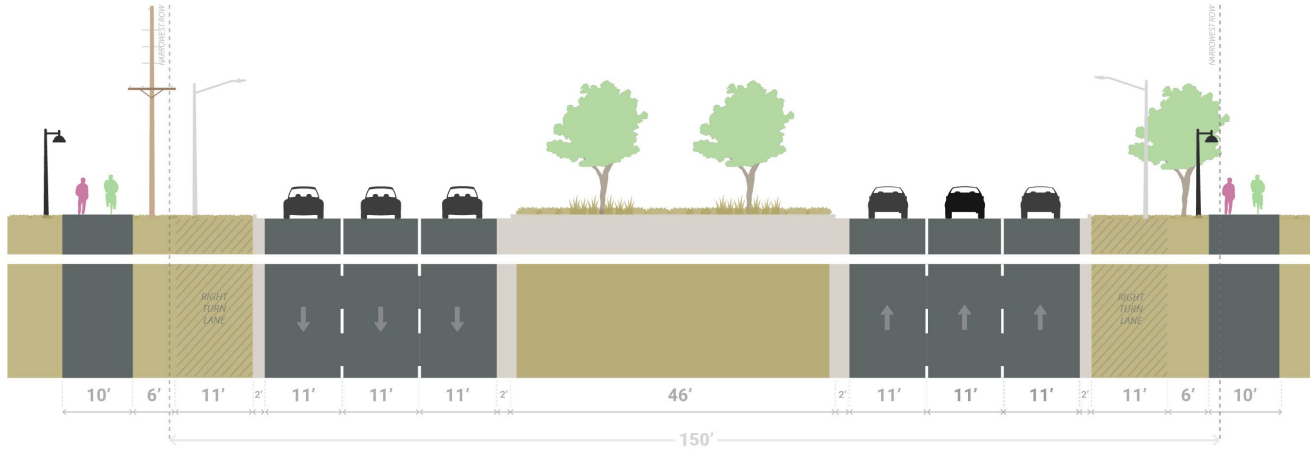
Concept C1: Maximized Median, Lane Reduction

This concept maximizes the width of the center median by reducing a vehicle lane in each direction and moving other assets to ROW edges. This concept may allow for expanded median landscaping, may facilitate moving corridor drainage to the median (freeing up space on the edge for other features), may accommodate a center-running trail, or may facilitate a more comfortable multi-stage pedestrian crossing.



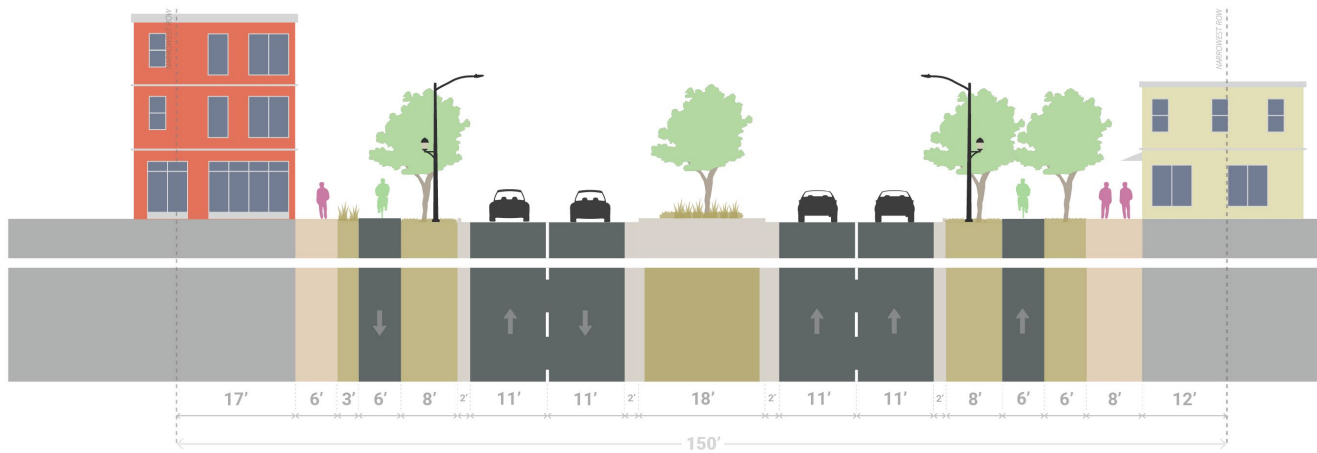
Concept C2: Maximized Median, Existing Number of Lanes Maintained

A wider median with three vehicle travel lanes in each direction would be possible at many points along the corridor, but this cross section either may not be feasible at the narrowest sections or it would require the removal of right turn lanes at these locations.



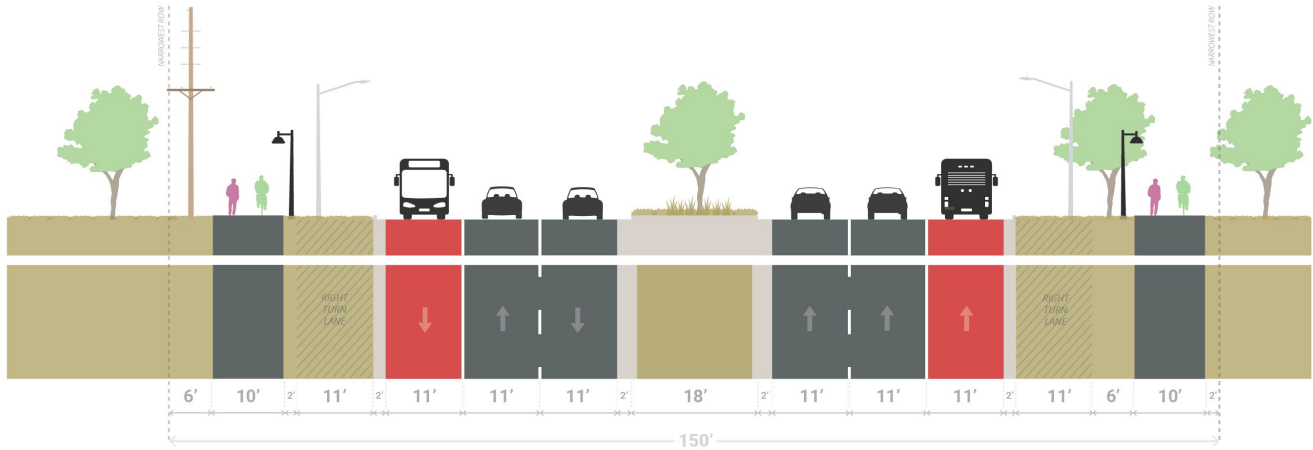
Concept D: Urban Boulevard

This concept envisions the Parkway transformed into an urban boulevard, with a lane reduction, plantings, raised cycle tracks, and sidewalks on both sides. This concept envisions a design that, along with zoning changes, supports a corridor with more human-scale and urban development patterns that fill in over time. More than any other, this concept transforms the entire character of the corridor.



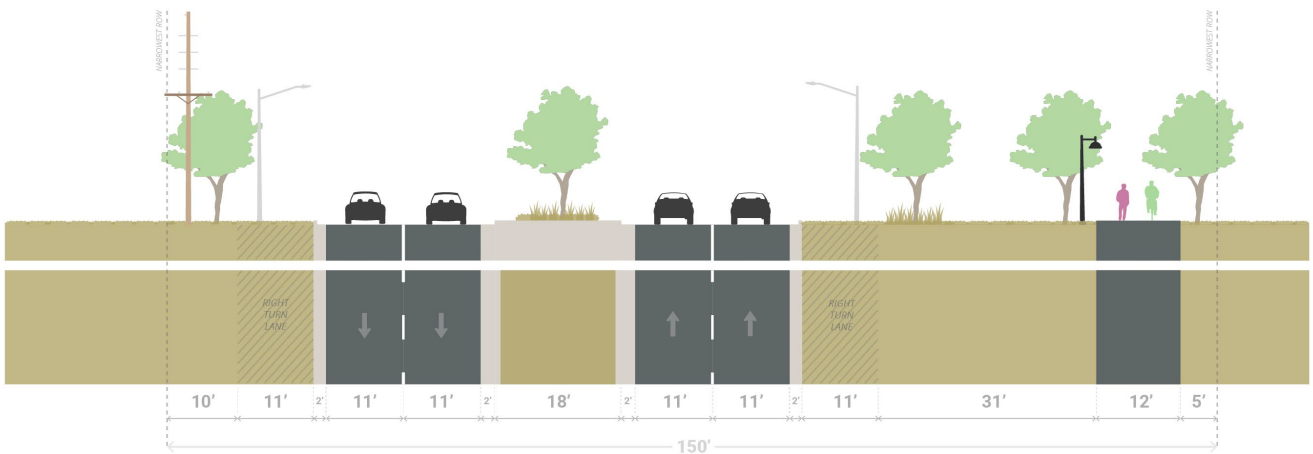
Concept E: Dedicated Bus Lanes

This concept demonstrates the conversion of one vehicle travel lane in each direction to a dedicated bus lane. This concept could prove useful in a scenario where existing transit routes are substantially redesigned to rely heavily on traveling along the corridor. In some situations, a shared bus lane/right turn lane may be preferable.



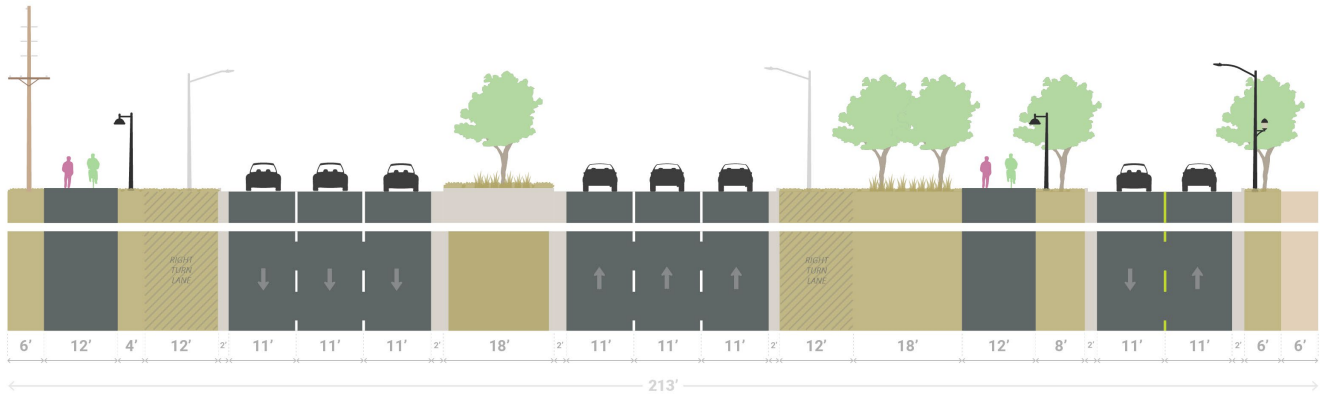
Concept F: Roadway Shift

This concept demonstrates the possibilities of shifting a Veterans Parkway with reduced lanes off its center alignment to open up more potentially useable green space on one side and/or to provide a larger buffer between vehicle travel lanes and the shared-use path.



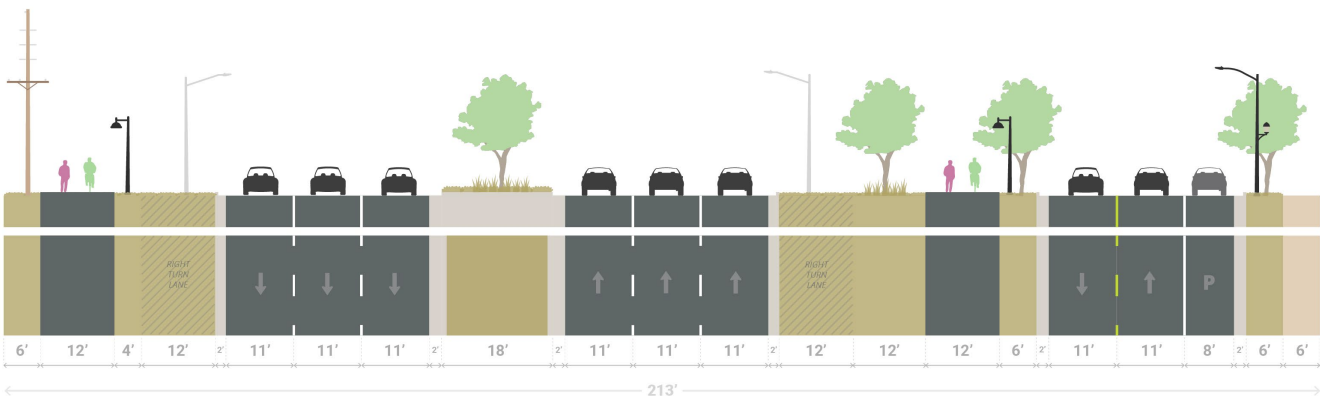
Concept G1: Frontage Road Upgrades

This concept demonstrates how an existing frontage road could be redesigned to meet complete streets standards, to open up additional landscaping space, and to provide an increased buffer between the shared-use path and Veterans Parkway travel lanes. The graphic below demonstrates the approximate existing condition of the corridor between Lincoln Ave and Oakland Ave, but the principles can be applied to other frontage roads.



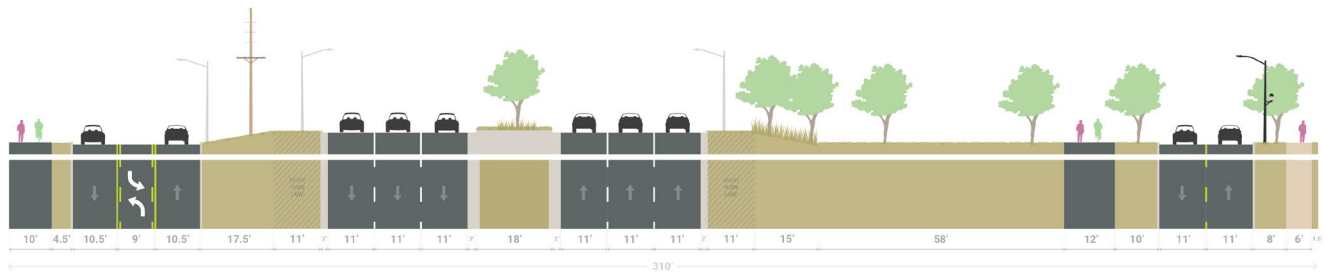
Concept G2: Frontage Road Upgrades + Parking

This concept includes street parking on one side of the frontage road, which could further support new types of more human-scaled and urban development along these facilities. The graphic below demonstrates the approximate existing condition of the corridor between Lincoln Ave and Oakland Ave, but the principles can be applied to other frontage roads.



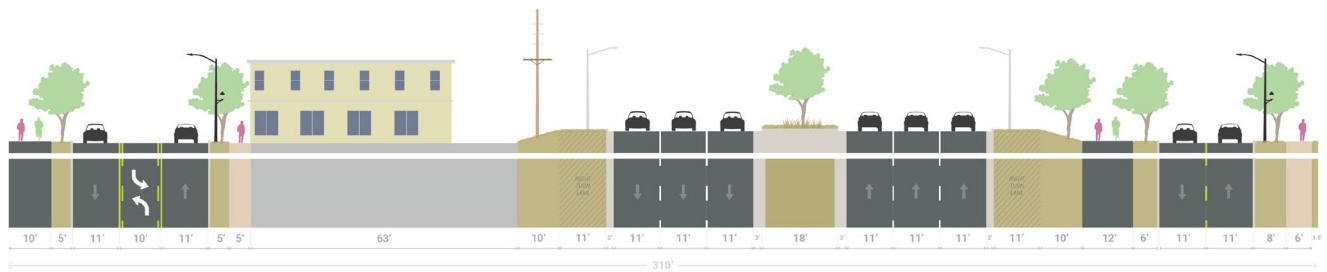
Concept H1: Widest ROW Shift – Park Space

This concept applies to the segment of the corridor between Empire Street and Clearwater Ave, where total ROW is the widest. The grade differentiation between Veterans Parkway lanes and frontage road lanes varies, but some grade differentiation exists along most of this segment. This concept demonstrates how the Veterans Parkway travel lanes could be shifted off their central alignment and local streets narrowed to open up usable space for a new linear park on one side of the corridor. A combination of walls, fencing, landscaping, and/or topography would be used to protect park users from vehicle traffic on Veterans Parkway.



Concept H2: Widest ROW Shift – Developable Space

This concept applies to the segment of the corridor between Empire Street and Clearwater Ave, where total ROW is the widest. The grade differentiation between Veterans Parkway lanes and frontage road lanes varies, but some grade differentiation exists along most of this segment. This concept demonstrates how the Veterans Parkway travel lanes could be shifted off their central alignment and local streets narrowed to open up usable space for new development on one side of the corridor. Further analysis would be required to better understand whether sufficient space could be created that would support feasible development projects. This concept could even potentially provide project funding through land leases or sales.



Appendix C: Drainage Existing Conditions Memo

MEMORANDUM

DATE: June 9, 2025

TO: Mark Bennett (TYLin)
Kyle Sant, PE, PTOE (TYLin)

FROM: Jason Heinekamp, P.E.
Colin Coad, PE, PTOE, VMA

SUBJECT: Veterans Parkway
Review of Existing Drainage Conditions

The following is a general overview of the existing drainage facilities and characteristics of Veterans Parkway between the south and north Interstate 55 interchanges. Descriptions were prepared after review of aerial images, Google Street View images, FEMA GIS maps, IDNR-OWR maps, and GIS data of stormwater facilities from the Town of Normal and City of Bloomington, and GIS contours provided by McLean County. This memorandum is accompanied by a graphical exhibit.

South Interstate 55 Interchange to Six Points Road / Greenwood Avenue

Roadway drained by median and outside ditches. Approaches to Fox Creek Rd / Hamilton Rd intersection have curb and inlets, which drain into the median ditches. Median ditch near S Morris Avenue drains into storm sewer that drains north toward Six Points Road.

Six Points Road / Greenwood Avenue to Business 51

Center median ditch ends west of Greenwood Avenue and becomes a curbed grassy median. Grassy median extends ~1,000 feet east of Greenwood Avenue before becoming a narrow concrete median. Curb inlets follow along the center grassy and concrete medians, which outlet in small local storm sewer networks which ultimately drain north under the Highland Park Golf Course toward Goose Creek. Outside ditches continue through this section. The defined origin of Goose Creek appears to be in the northwest quadrant of Veterans Pkwy and Business 51 intersection. Goose Creek is contained within a regulated floodway in this area.

Business 51 to S Mercer Avenue

Median inlets and small local storm sewer systems end as the section approaches the grade separated crossings of Business 51 and the Norfolk Southern Railway. In these areas the pavement is drained over the outside shoulder. The on-grade section resumes east of the Norfolk Southern Railway. In addition to concrete medians, this section of roadway is flanked with outside curb and curb inlets. These inlets drain into storm sewer that lie in the grassy areas between the back of curb and edge of ROW.

The grassy areas west of Commerce Pkwy are not shaped but graded for general positive drainage between the back of curb and edge of ROW. It appears some areas may drain toward the roadway. The grassy areas east of Commerce Pkwy continue a shaped ditch behind the southern curb. The ditch is lined which indicates heavy flow conditions from the adjacent commercial developments. Commercial developments north of Veterans Pkwy appear to drain away.

Median curb inlets resume, and outside curb inlets continue in the approaches to the US 150 intersection. Outside grassy areas behind the northern and southern curbs end temporarily to accommodate with residential and commercial developments near Mercer Ave.

S Mercer Avenue to IL 9

Curb inlets continue between Mercer Avenue and Lincoln Avenue. Median inlets drain into storm sewer beneath the median, which intermittently outlet in other local storm sewer systems that drain away from Veterans Pkwy. Grassy areas outside the back of curb vary in width, slope, and grade direction as they tie to the existing commercial and residential developments along Veterans Pkwy. Separate storm sewer trunks intermittently lie beneath the outside curb and drain the median storm sewer. The outside storm sewer trunks intermittently connect with networks from larger commercial developments, forming a large intricate system.

IL 9 to General Electric Road / E Vernon Avenue

The IL 9 intersection curb inlets outlet into the large grassy areas within the NW, NE, and SE intersection infields. Each infield contains ditches which generally drain west through local storm sewer and culverts. Large sanitary force mains lie along the east ROW between IL 9 and north of General Electric Rd.

The roadway section north of IL 9 continues to include median and outside curb with inlets and storm sewer. Grassy areas outside the curb typically drain away from Veterans Pkwy pavement. Storm sewers drain toward an 8-ft diameter sewer which crosses under Veterans Pkwy near Arrowhead Dr and outlets into an existing drainage ditch west Veterans Pkwy.

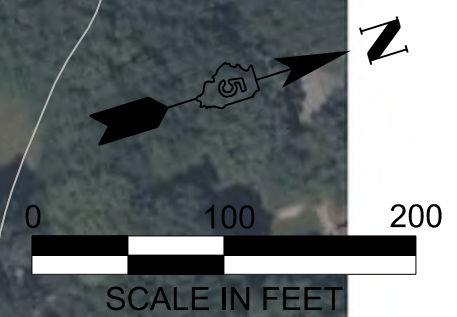
General Electric Road / E Vernon Avenue to Fort Jesse Road

Median and outside curb inlets continue north of General Electric Rd, but are primarily drained by storm sewer under the west curb. Wide ditches exist beyond the back of curb to drain runoff from adjacent developments. Ditches outlet into Sugar Creek, which exist just north of General Electric Rd. Sugar Creek is large natural channel and is contained within the regulatory floodplain. A bridge carries Veterans Pkwy over Sugar Creek.

North of E College Avenue curb and median inlets drain to median storm sewer which intermittently outlets into mid-sized crossroad culverts that drain away from Veterans Pkwy.

Fort Jesse Road to North Interstate 55 Interchange

Immediately north of Fort Jesse Rd lies North Branch Sugar Creek along the west side of Veterans Pkwy. North Branch Sugar Creek is a defined drainage channel that is contained within a regulator floodway. The width and proximity of North Branch Sugar Creek vary as Veteran Pkwy approaches Old US 66 and the Union Pacific Railroad. The regulatory floodway swells to include the entirety of the Veteran Pkwy roadway section. Any roadway improvements which alter the existing roadway slopes will likely require coordination with IL Department of Natural Resource – Office of Water Resources. The floodway subsides north of Shepard Rd as Veteran Pkwy approaches the I-55 interchange.



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	EX STORM SEWER
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	EX CULVERT
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

VETERANS PARKWAY EXISTING DRAINAGE EXHIBIT			
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F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		MCLEAN		
		CONTRACT NO.		
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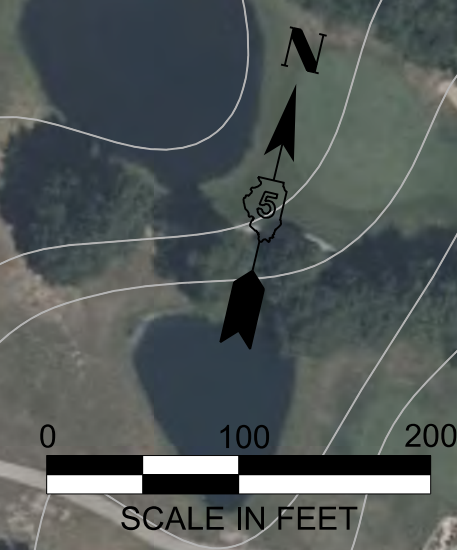
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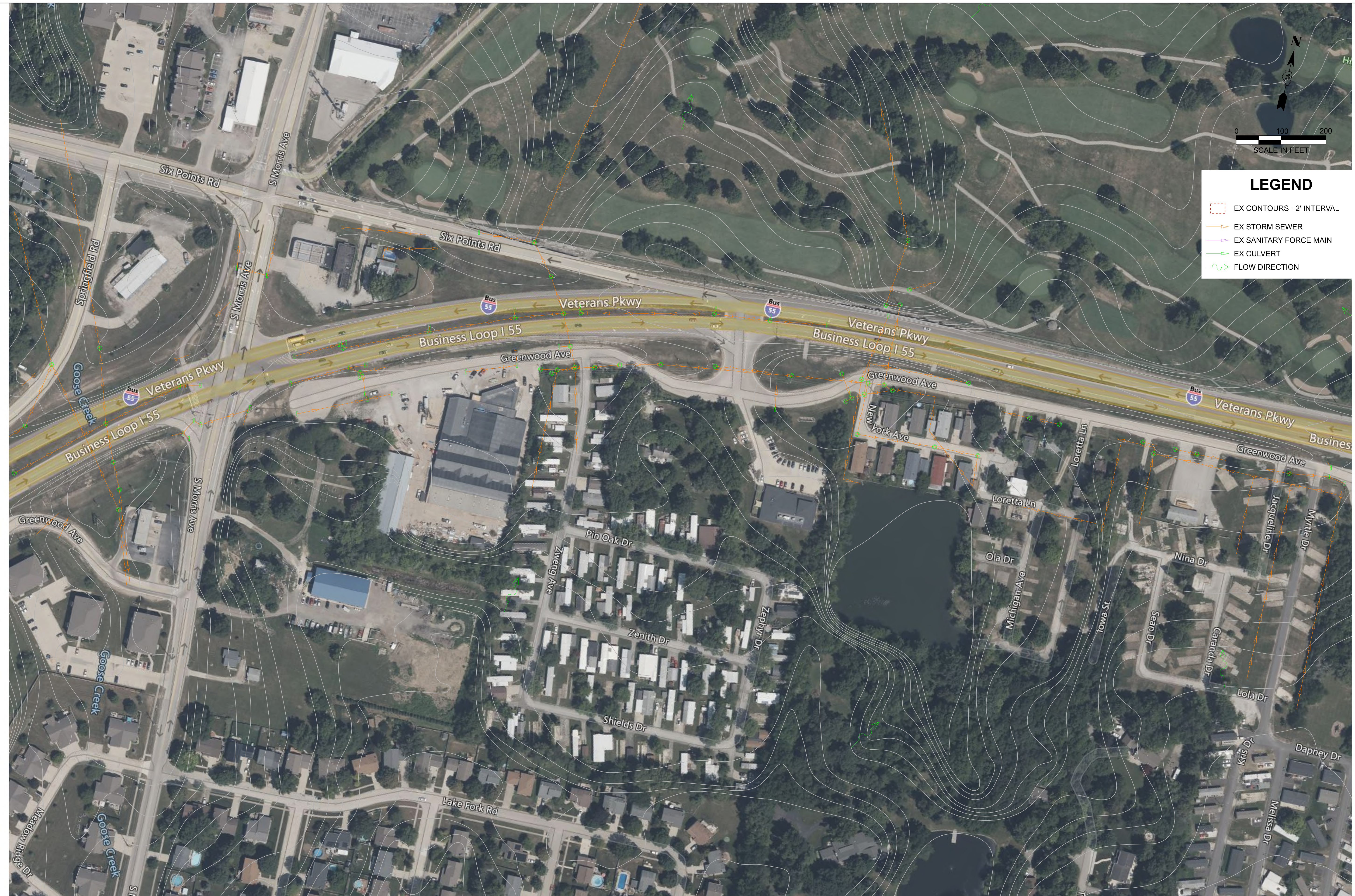
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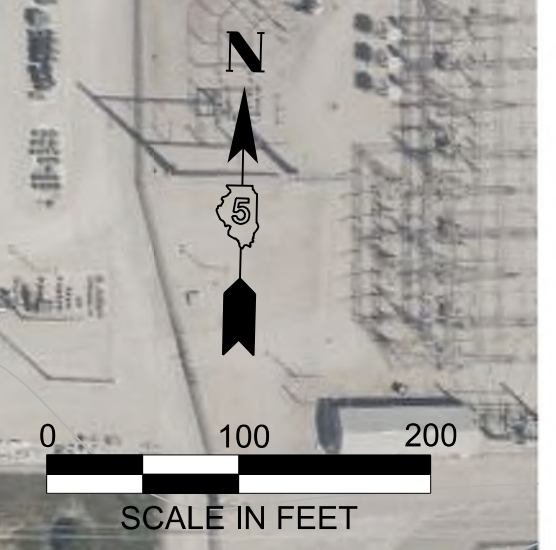
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DEPARTMENT OF TRANSPORTATION

VETERANS PARKWAY
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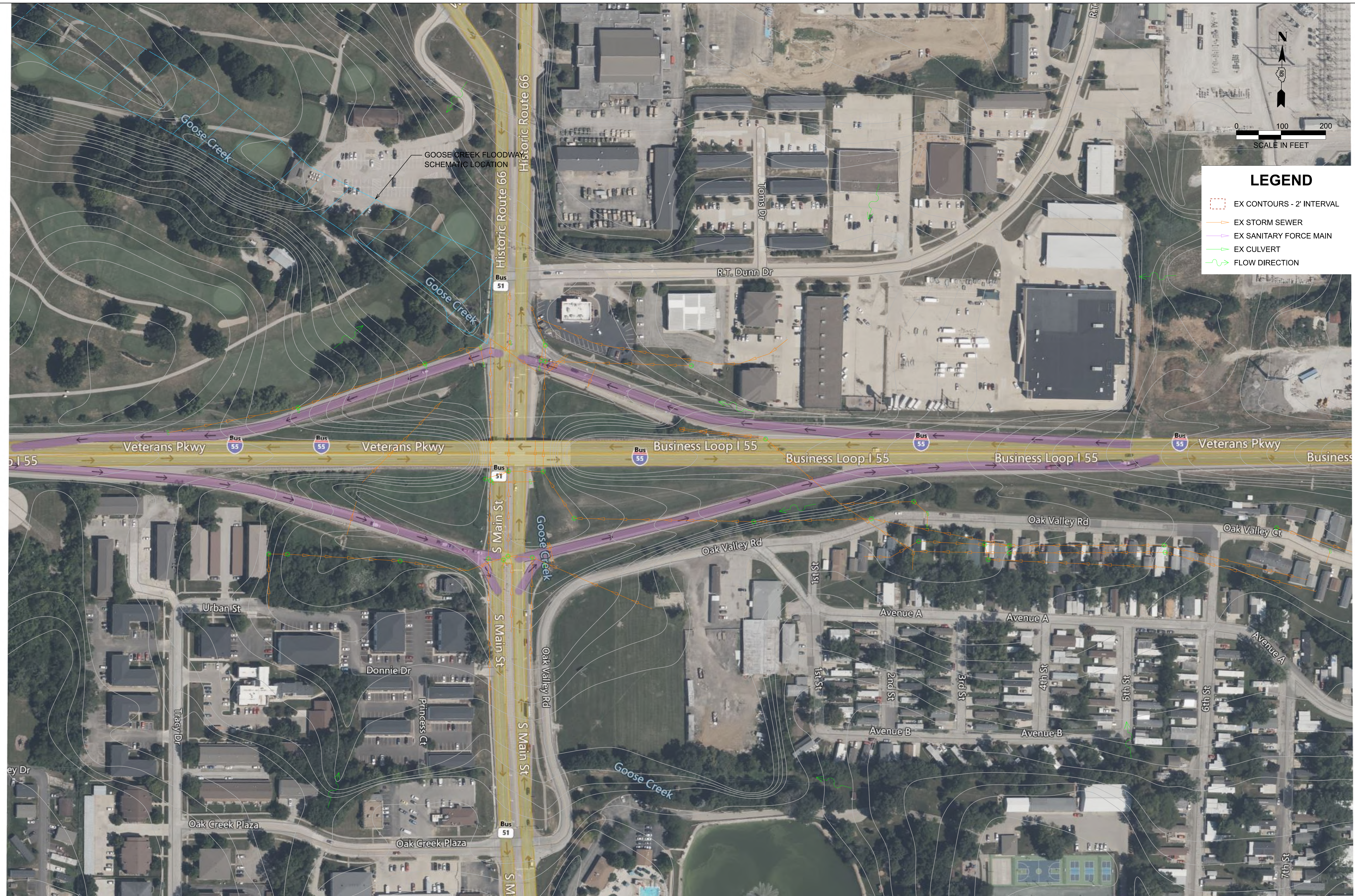
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ILLINOIS FED. AID PROJECT				



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VETERANS PARKWAY
EXISTING DRAINAGE EXHIBIT

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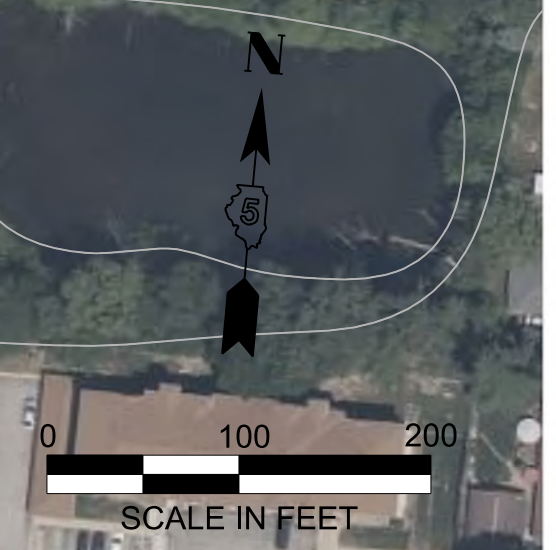
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**VETERANS PARKWAY
 EXISTING DRAINAGE EXHIBIT**

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ILLINOIS FED. AID PROJECT				



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- EX CULVERT
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**VETERANS PARKWAY
EXISTING DRAINAGE EXHIBIT**

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VETERANS PARKWAY
EXISTING DRAINAGE EXHIBIT

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**VETERANS PARKWAY
EXISTING DRAINAGE EXHIBIT**

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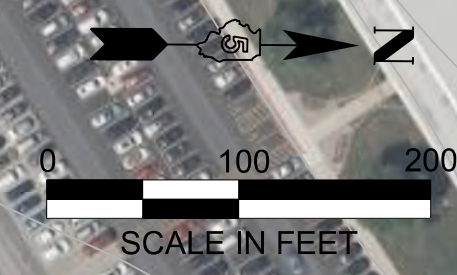
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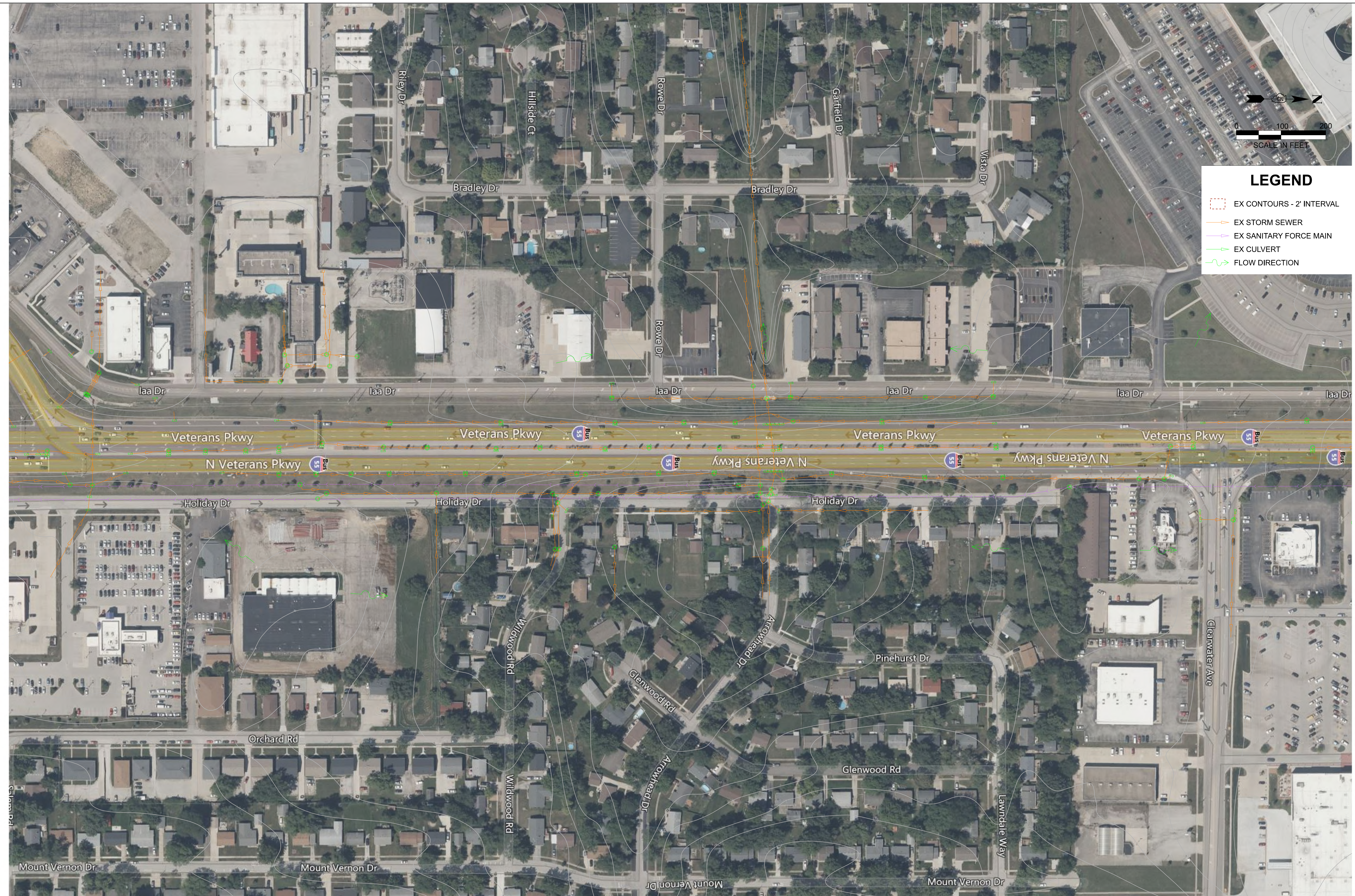
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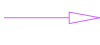


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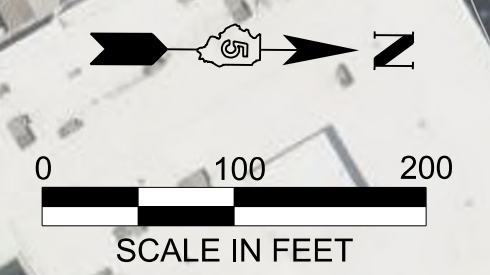
VETERANS PARKWAY
EXISTING DRAINAGE EXHIBIT

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ILLINOIS FED. AID PROJECT				

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-  EX STORM SEWER
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SCALE IN FEET

S BRANCH SUGAR CREEK FLOODWAY SCHEMATIC LOCATION



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**VETERANS PARKWAY
EXISTING DRAINAGE EXHIBIT**

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CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



LEGEND

- EX CONTOURS - 2' INTERVAL
- EX STORM SEWER
- EX SANITARY FORCE MAIN
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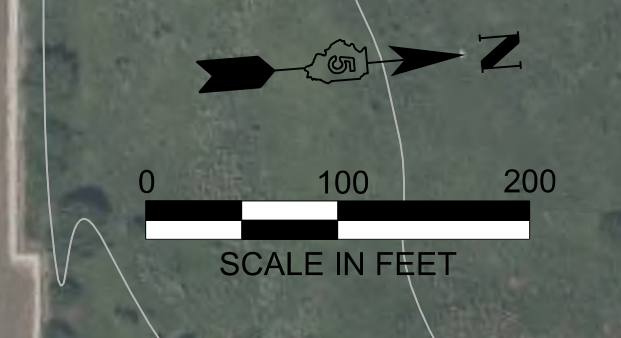
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**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**VETERANS PARKWAY
 EXISTING DRAINAGE EXHIBIT**

SCALE: 1"=100' SHEET 13 OF 16 SHEETS STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		MCLEAN		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



LEGEND

- ⋯ EX CONTOURS - 2' INTERVAL
- EX STORM SEWER
- EX SANITARY FORCE MAIN
- EX CULVERT
- FLOW DIRECTION

N BRANCH SUGAR CREEK FLOODWAY, SCHEMATIC LOCATION

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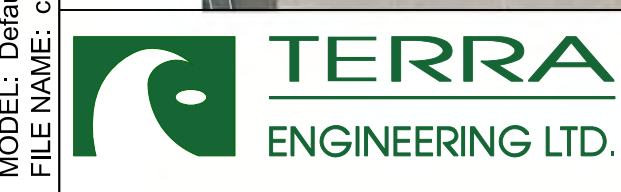
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

VETERANS PARKWAY
EXISTING DRAINAGE EXHIBIT

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F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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ILLINOIS FED. AID PROJECT				

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 DEPARTMENT OF TRANSPORTATION**

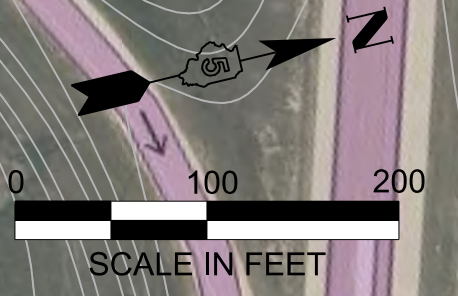
**VETERANS PARKWAY
 EXISTING DRAINAGE EXHIBIT**

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		MCLEAN		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				

SCALE: 1"=100' SHEET 15 OF 16 SHEETS STA. TO STA.

N BRANCH SUGAR CREEK FLOODWAY
SCHEMATIC LOCATION

E Raab Rd



LEGEND

- EX CONTOURS - 2' INTERVAL
- EX STORM SEWER
- EX SANITARY FORCE MAIN
- EX CULVERT
- FLOW DIRECTION



MODEL: Default
FILE NAME: c:\p\work\pw_maint\ms482361\TERRA-PLAN-BORDER.dgn



USER NAME =	DESIGNED - JRH	REVISED -
	DRAWN - TLH	REVISED -
PLOT SCALE = 0.08333317' / in.	CHECKED -	REVISED -
PLOT DATE =	DATE - 2024/07/01	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**VETERANS PARKWAY
EXISTING DRAINAGE EXHIBIT**

SCALE: 1"=100' SHEET 16 OF 16 SHEETS STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		MCLEAN		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				

Technical Appendices

Traffic Modeling

GHG/Pollution Modeling

Traffic Modeling

Traffic Volume Projections

Based on the projections provided from the ILSTDM, compounded annual growth rates were derived for study roadways, including Veterans Parkway and intersecting streets. As a statewide model, the ILSTDM does not include every intersecting street with Veterans Parkway. In these locations, growth rates were assigned based on the roadway's connectivity and/or the level of potential development expected to occur during the design horizon. A summary of annualized growth rates by roadway segment is shown below in **Figure C1**.

The annualized growth rates were applied to existing peak hour volumes at the study intersections. It should be noted that under the six-lane cross-section scenario, all growth rates were positive and relatively consistent between the Veterans Parkway segments and the adjacent side streets. Under this scenario, side street growth rates were applied to turning movements to and from the corridor, yielding relatively minor imbalances along the Veterans Parkway corridor. Under the four-lane scenario, Veterans Parkway and side street growth rates varied more greatly, yielding larger imbalances particularly in segments with negative projected growth on Veterans Parkway and positive growth on side streets. To reconcile the conflicting scenario, turning movements under this scenario were grown using the proximate Veterans Parkway rate. A summary of application methodology is outlined in **Table C1**.

Table C12: Annualized Growth Rates Application

Movement Type	Six-Lane Cross Section	Four-Lane Cross Section
Veterans Parkway Through Movement	Apply Veterans Parkway rate	Apply Veterans Parkway Rate
Side Street Through Movement ²⁸	Apply rate of movement's originating leg	Apply rate of movement's originating leg
Turning Movement	Apply Side Street Rate	Apply Veterans Parkway Rate ²⁹

The resulting volumes were balanced throughout the study network during the morning and evening peak hours. Side street volumes were held constant, with balancing adjustments applied to through movements on Veterans Parkway. The resulting background growth volumes were added to existing peak hour volumes to yield future Year 2045 projections. Peak hour projections for six-lane and four-lane cross-section alternatives are shown on **Figure C2** and **Figure C3**.

²⁸ For side streets assumed to exhibit no background growth, a 0 percent growth rate was applied to both side street through movements.

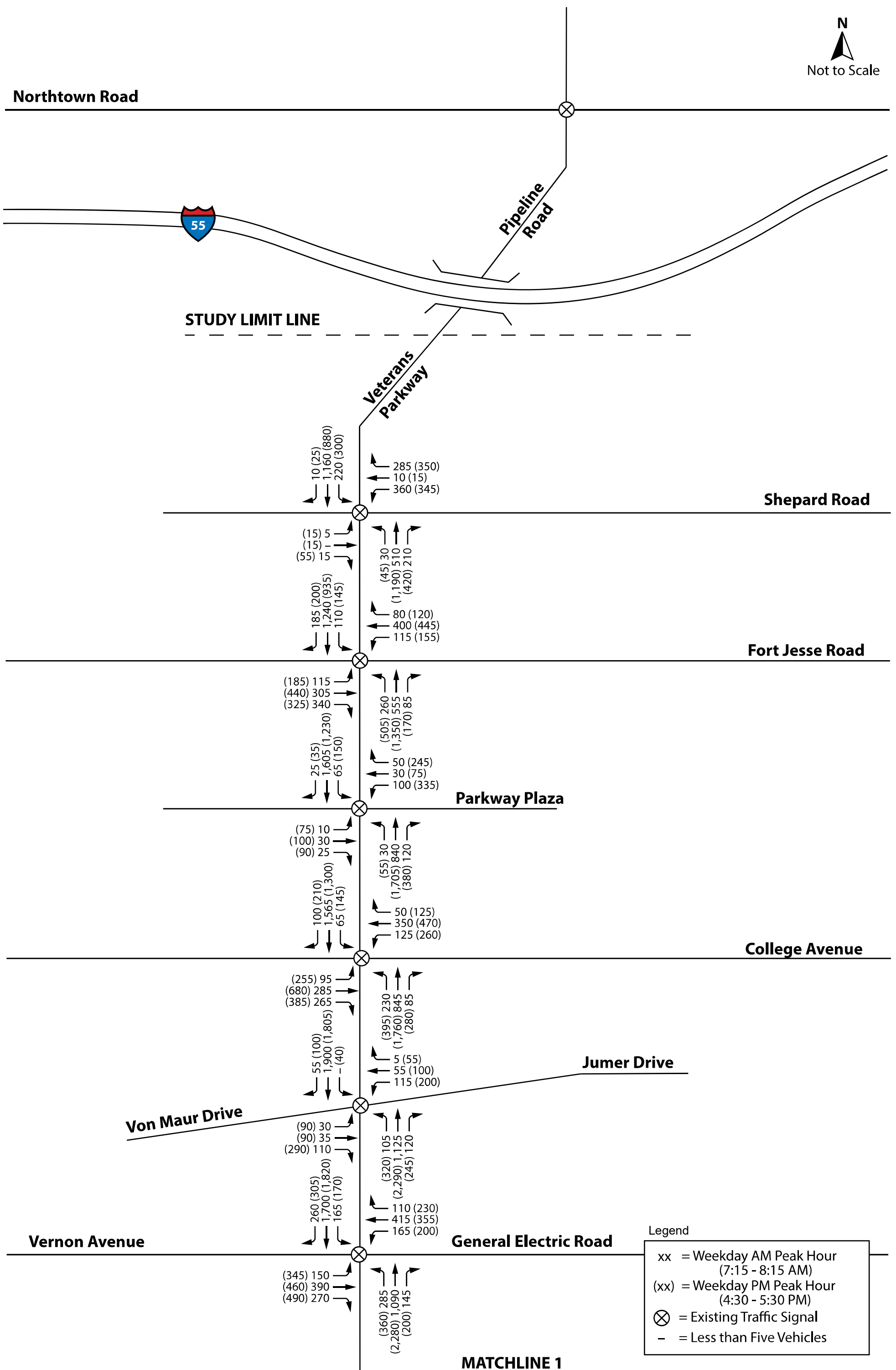
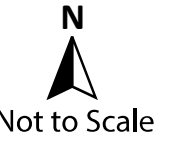
²⁹ For side street assumed to exhibit no background growth, a 0 percent growth rate was applied to all turning movements on to / off of side street.

Figure C1: Annualized Growth Rates by Roadway Segment

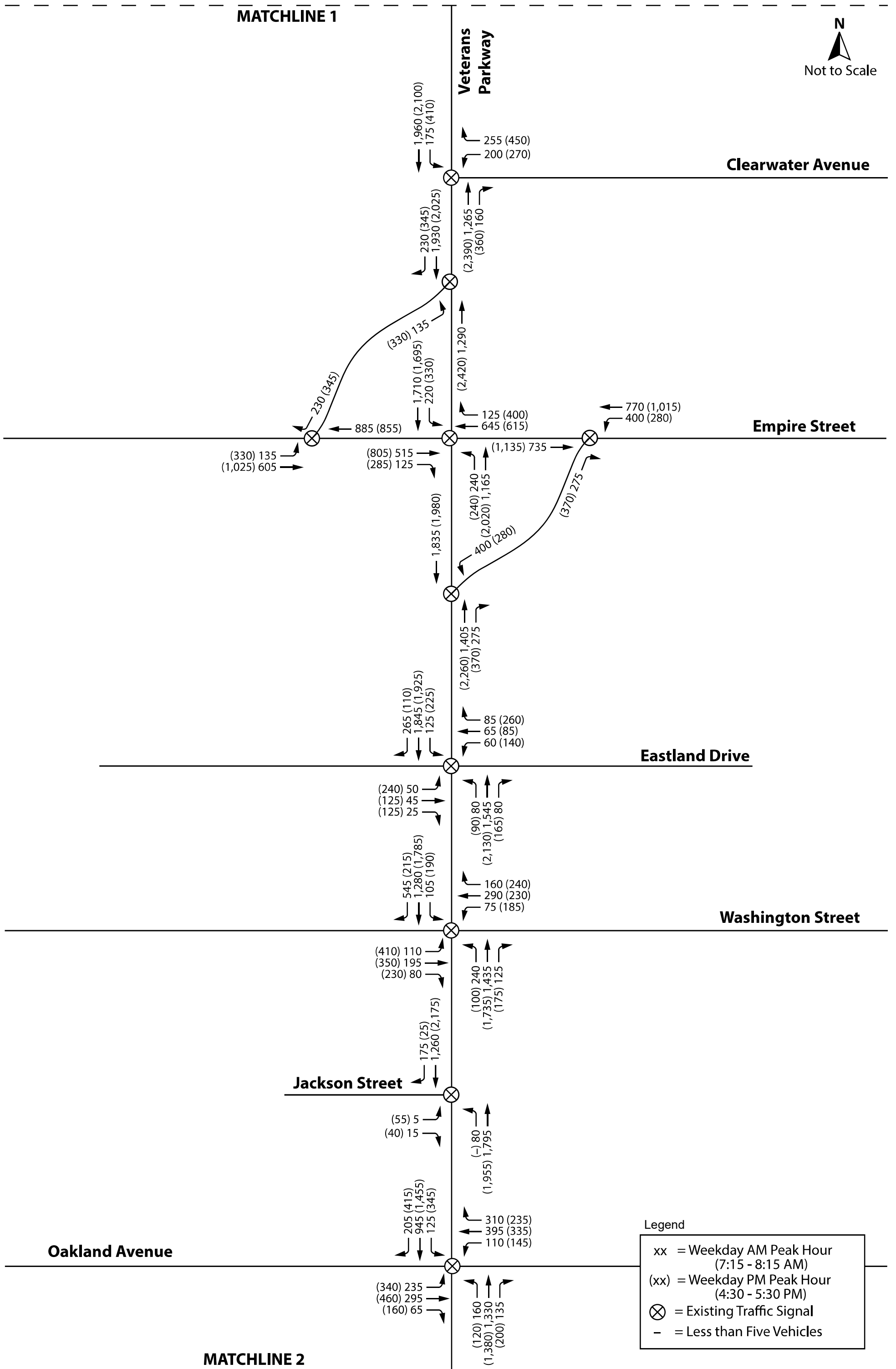
		2025-2025 Annualized Growth Rates (6-Lane Alternatives)			2025-2025 Annualized Growth Rates (4-Lane Alternatives)			
Road	Segment	NB/EB	SB/WB	TOTAL	NB/EB	SB/WB	TOTAL	NOTES
Veterans Parkway	North of Shepard	1.03%	0.99%	1.01%	0.89%	0.52%	0.71%	
	North of Fort Jesse	1.03%	0.99%	1.01%	0.89%	0.52%	0.71%	
	North of Parkway Plaza	0.89%	0.69%	0.79%	0.17%	-0.12%	0.03%	
	North of College	0.89%	0.69%	0.79%	0.17%	-0.12%	0.03%	
	North of Von Maur/Jumer	0.67%	0.51%	0.59%	-0.36%	-0.75%	-0.55%	
	North of Vernon/GE	0.67%	0.51%	0.59%	-0.36%	-0.75%	-0.55%	
	North of Clearwater	0.51%	0.51%	0.51%	-0.69%	-0.68%	-0.69%	
	North of Empire	0.51%	0.51%	0.51%	-0.69%	-0.68%	-0.69%	
	North of Eastland	0.64%	0.66%	0.65%	-0.49%	-0.41%	-0.45%	
	North of Washington	0.64%	0.66%	0.65%	-0.49%	-0.41%	-0.45%	
	North of Jackson	0.47%	0.50%	0.49%	-0.88%	-0.66%	-0.77%	
	North of Oakland	0.47%	0.50%	0.49%	-0.88%	-0.66%	-0.77%	
	North of Lincoln	0.55%	0.66%	0.60%	-0.59%	-0.23%	-0.41%	
	North of Ireland Grove	0.54%	0.65%	0.60%	-0.48%	-0.08%	-0.28%	
North of Mercer	0.57%	0.54%	0.56%	-0.15%	-0.02%	-0.08%		
Shepard	West of VP	0.77%	0.54%	0.65%	0.66%	0.58%	0.62%	No projections available, assume same rates as east leg
	East of VP	0.77%	0.54%	0.65%	0.66%	0.58%	0.62%	No projections available, assume same rates as west leg of Forte Jesse Road
Fort Jesse	West of VP	0.69%	0.70%	0.69%	0.46%	0.36%	0.41%	
	East of VP	0.77%	0.54%	0.65%	0.66%	0.58%	0.62%	
Parkway Plaza	West of VP	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	No projections available. Assume no growth based on level of development + connectivity
	East of VP	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	No projections available. Assume no growth based on level of development + connectivity
College	West of VP	0.498%	0.622%	0.56%	0.09%	0.46%	0.27%	
	East of VP	0.503%	0.633%	0.57%	0.48%	0.56%	0.52%	
Von Maur	West of VP	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	No projections available. Assume no growth based on level of development + connectivity
Jumer	East of VP	0.33%	0.63%	0.48%	0.14%	0.48%	0.31%	No projections available. Assume same rates as General Electric Road
Vernon	West of VP	0.69%	0.76%	0.73%	0.76%	0.55%	0.65%	
General Electric	East of VP	0.33%	0.63%	0.48%	0.14%	0.48%	0.31%	
Clearwater	East of VP	0.33%	0.63%	0.48%	0.14%	0.48%	0.31%	No projections available. Assume same rates as General Electric Road
Empire	West of VP	0.76%	0.76%	0.76%	0.53%	0.53%	0.53%	

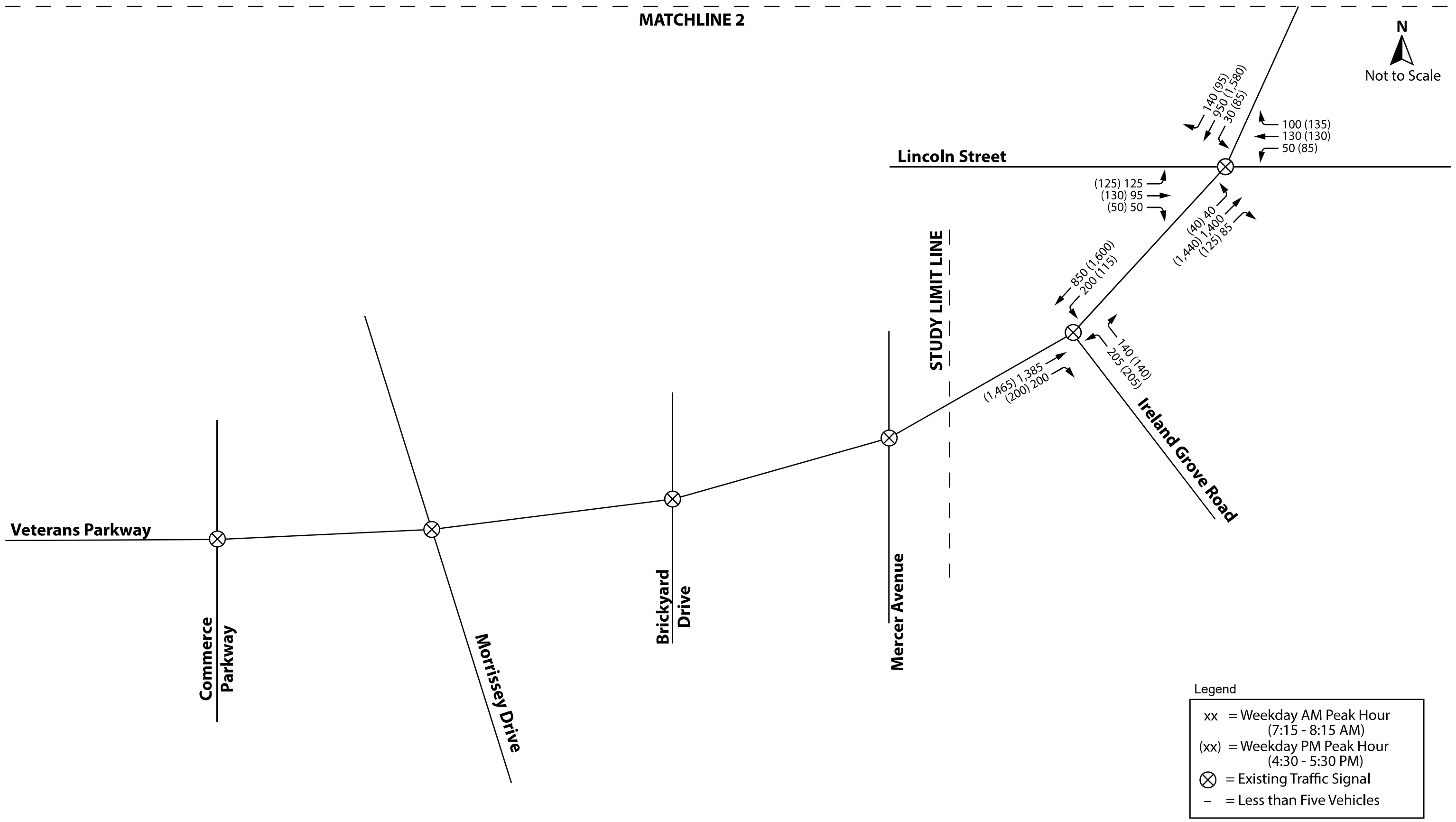
Figure C1: Annualized Growth Rates by Roadway Segment

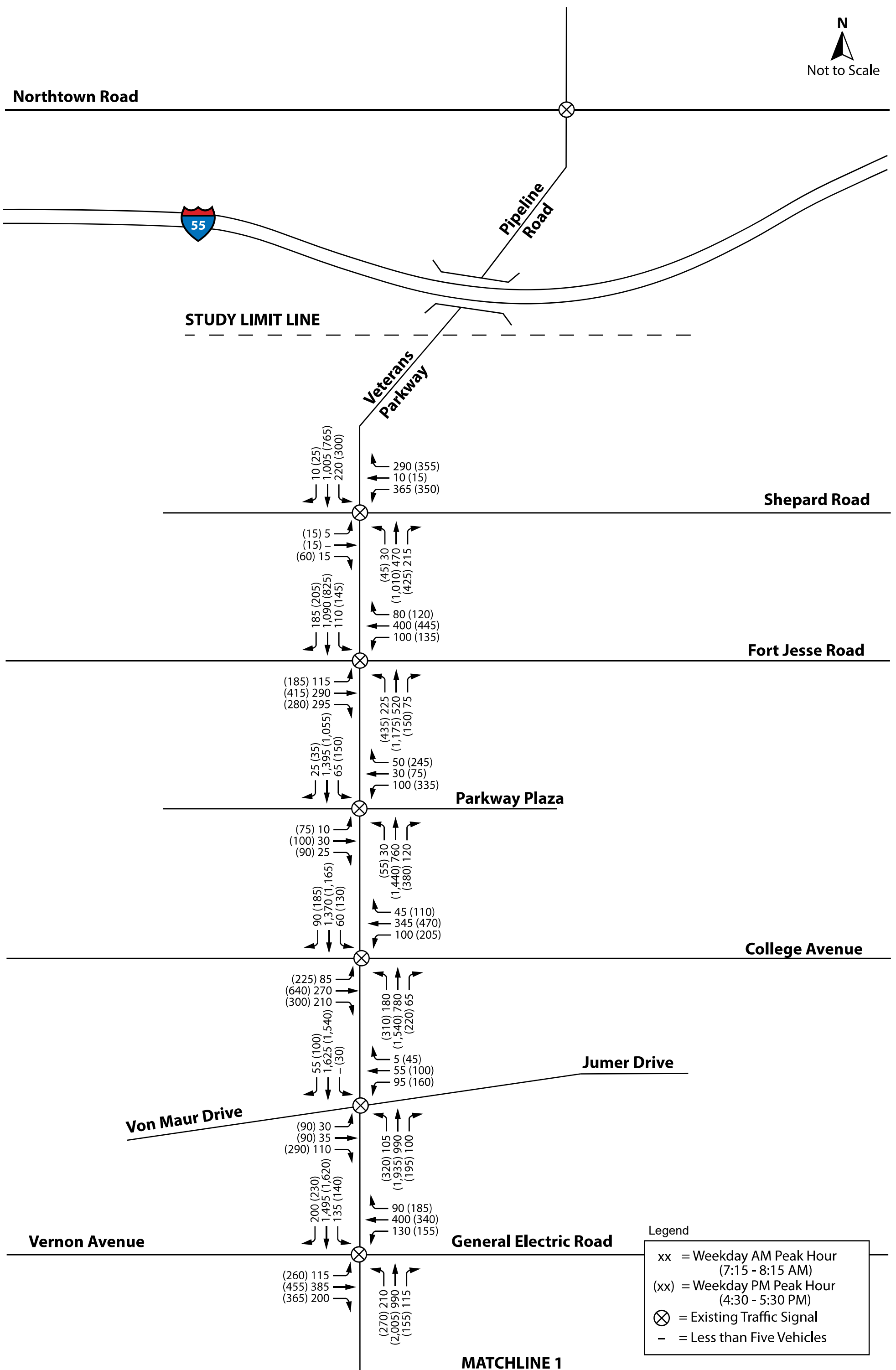
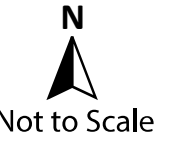
		2025-2025 Annualized Growth Rates (6-Lane Alternatives)			2025-2025 Annualized Growth Rates (4-Lane Alternatives)			NOTES
Road	Segment	NB/EB	SB/WB	TOTAL	NB/EB	SB/WB	TOTAL	
Street	East of VP	0.84%	0.84%	0.84%	1.15%	1.15%	1.15%	
Eastland	West of VP	1.10%	1.17%	1.14%	0.59%	1.00%	0.80%	No projections available. Assume same rates as Washington west of VP
	East of VP	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	No projections available. Assume no growth based on level of development + connectivity
Washington	West of VP	1.10%	1.17%	1.14%	0.59%	1.00%	0.80%	
	East of VP	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	No projections available. Assume no growth based on level of development + connectivity
Jackson	West of VP	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	No projections available. Assume no growth based on level of development + connectivity
Oakland	West of VP	1.12%	1.20%	1.16%	1.61%	1.47%	1.54%	
	East of VP	0.78%	0.74%	0.76%	0.57%	0.43%	0.50%	
Lincoln	West of VP	0.75%	0.96%	0.86%	0.32%	0.61%	0.47%	
	East of VP	0.89%	1.17%	1.03%	0.50%	0.87%	0.68%	
Ireland Grove	East of VP	0.51%	1.24%	0.88%	-0.46%	1.02%	0.28%	



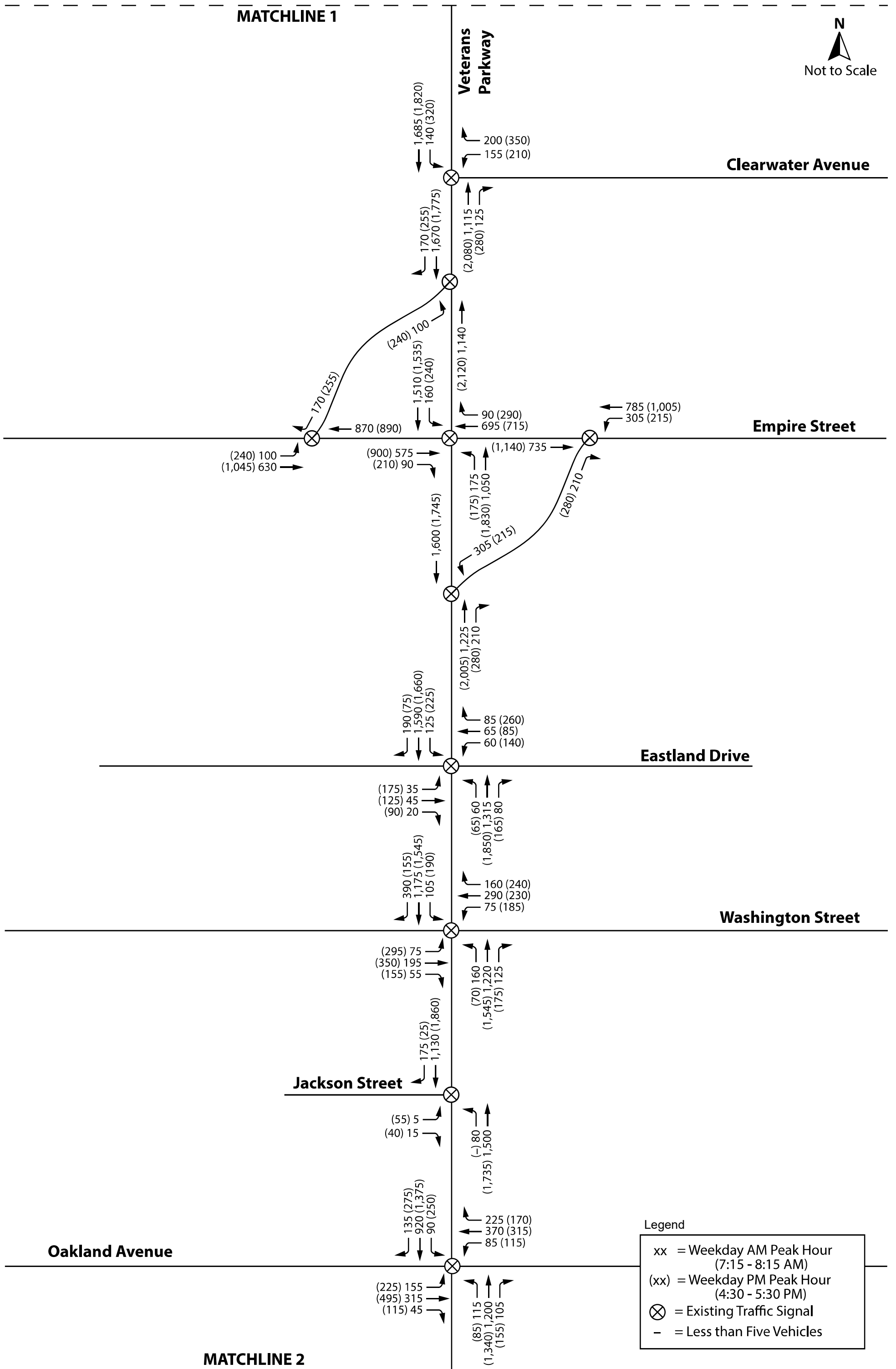
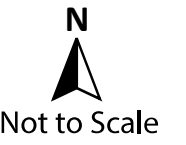
MATCHLINE 1

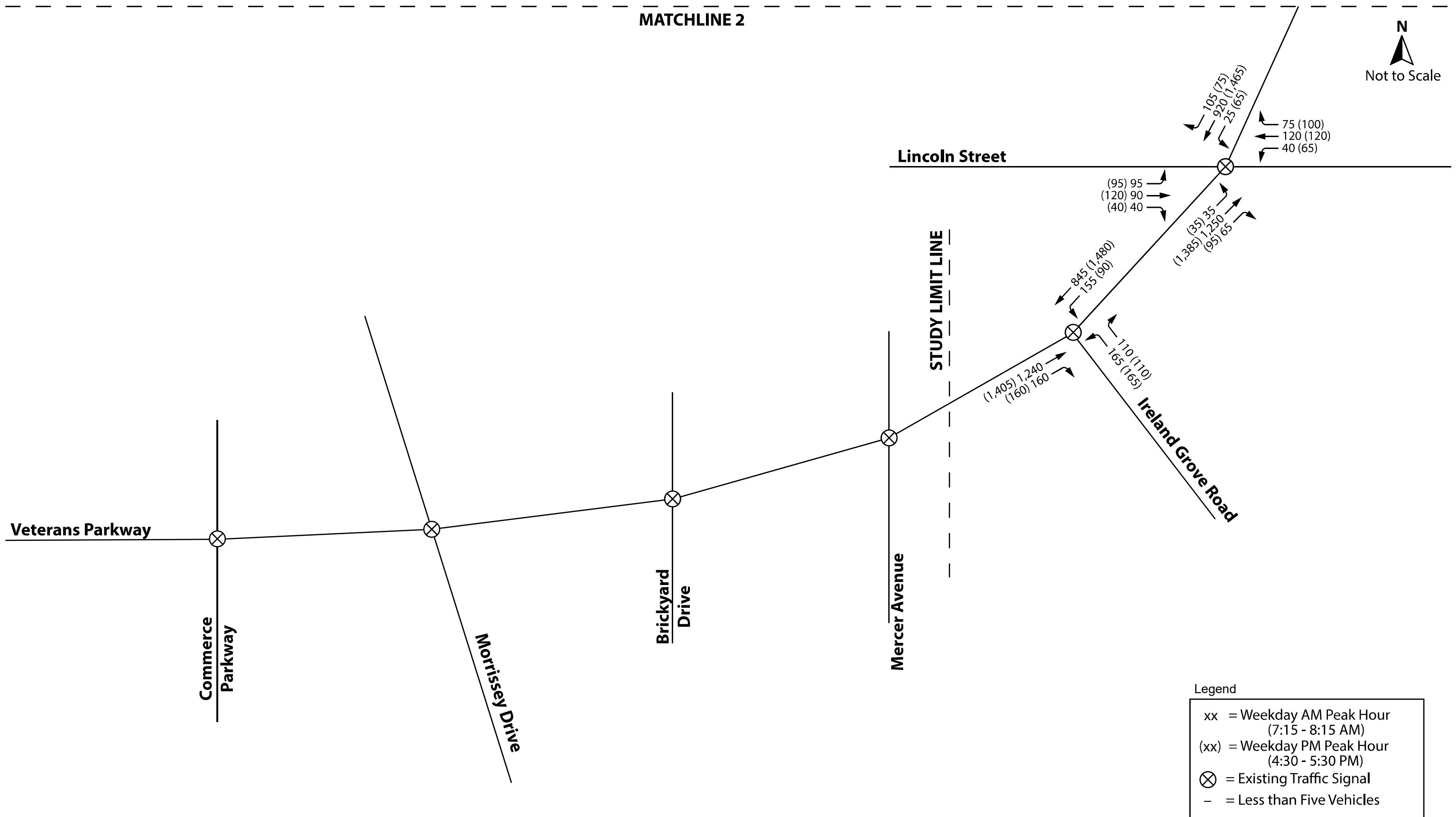






MATCHLINE 1

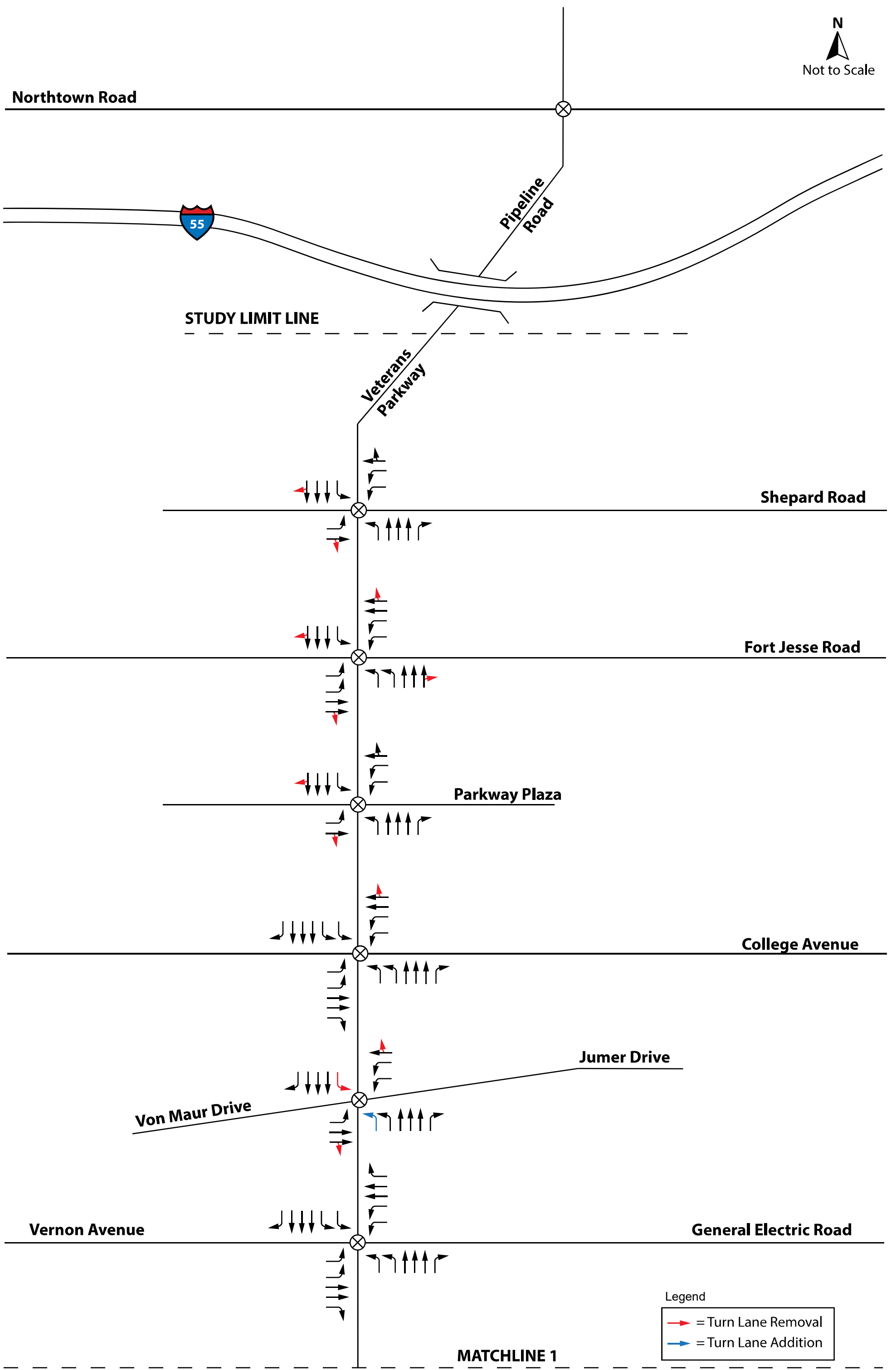
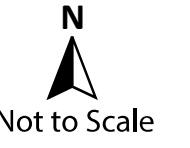




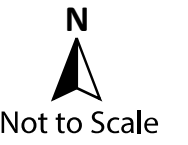
Geometric Modifications

Table C2: Intersection Turn Lane Configuration by Scenario

Cross Street	Northbound/Southbound							Eastbound/Westbound						
	Direction	Right-Turn Lanes			Left-Turn Lanes			Direction	Right-Turn Lanes			Left-Turn Lanes		
		M1	M2	M3	M1	M2	M3		M1	M2	M3	M1	M2	M3
Shephard	NB	1	1	1	1	1	1	EB	1	0	0	1	1	1
	SB	1	0	0	1	1	1	WB	0	0	0	2	2	2
Fort Jesse	NB	1	0	1	2	2	2	EB	1	0	1	2	2	1
	SB	1	0	0	1	1	1	WB	1	0	1	2	2	1
Parkway	NB	1	1	1	1	1	1	EB	1	0	1	1	1	1
	SB	1	0	0	1	1	1	WB	0	0	0	2	2	2
College	NB	1	1	1	2	2	2	EB	1	1	1	2	2	2
	SB	1	1	1	2	2	2	WB	1	0	1	2	2	2
Von Maur / Jumer	NB	1	1	1	1	2	2	EB	1	0	1	1	1	1
	SB	1	1	1	2	1	1	WB	1	0	1	2	2	2
Vernon / GE	NB	1	1	1	2	2	2	EB	1	1	1	2	2	2
	SB	1	1	1	2	2	2	WB	1	1	1	2	2	2
Clearwater	NB	1	1	1	-	-	-	EB	-	-	-	-	-	-
	SB	-	-	-	2	2	2	WB	1	1	1	2	2	2
Eastland	NB	1	1	1	1	1	1	EB	1	0	0	1	1	1
	SB	1	0	1	2	2	2	WB	1	0	1	1	1	1
Washington	NB	1	1	1	1	1	1	EB	1	1	1	2	2	2
	SB	1	1	1	1	1	1	WB	1	1	1	2	2	2
Jackson	NB	-	-	-	2	1	1	EB	2	1	1	2	1	1
	SB	1	0	0	-	-	-	WB	-	-	-	-	-	-
Oakland	NB	1	1	1	2	2	2	EB	0	0	0	1	1	1
	SB	1	1	1	2	2	2	WB	1	0	1	1	1	1
Lincoln	NB	1	0	0	1	1	1	EB	1	0	0	2	1	1
	SB	1	0	0	2	1	1	WB	1	0	0	2	1	1
Ireland Grove	NB	1	0	0	-	-	-	EB	-	-	-	-	-	-
	SB	-	-	-	2	1	1	WB	1	1	0	1	1	1



MATCHLINE 1



Veterans Parkway

Clearwater Avenue

Empire Street

Eastland Drive



E Washington Street

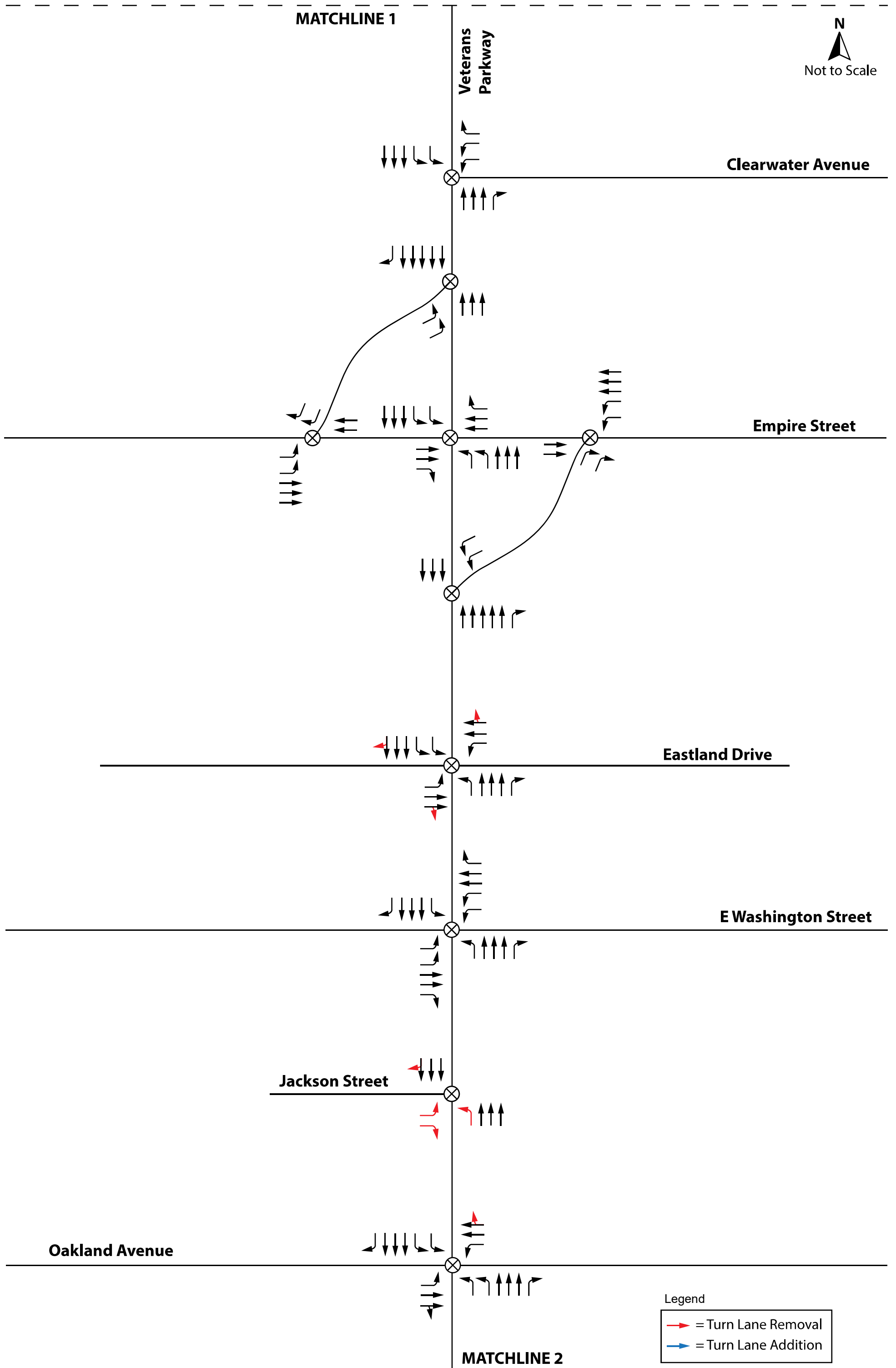
Jackson Street

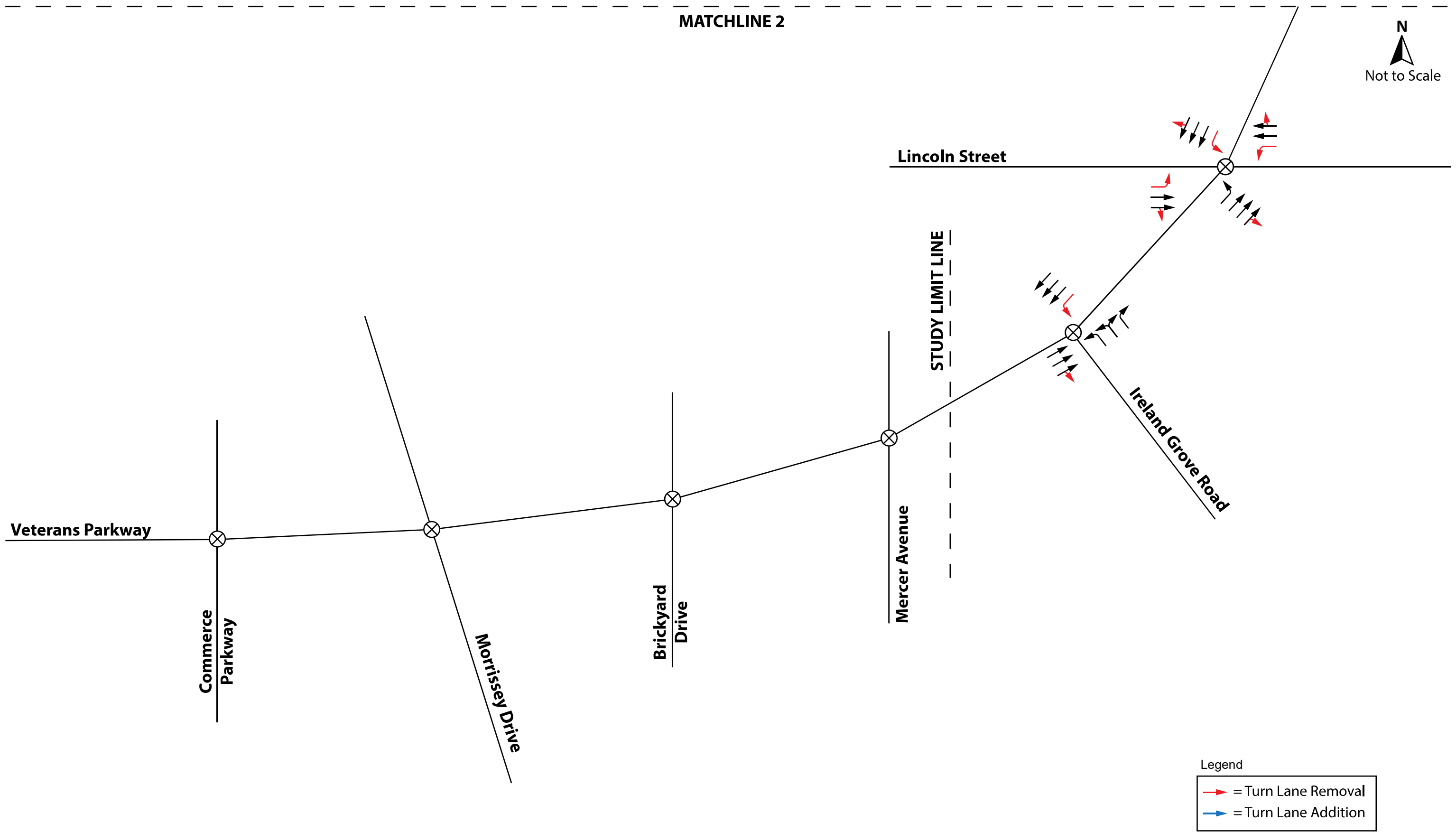
Oakland Avenue

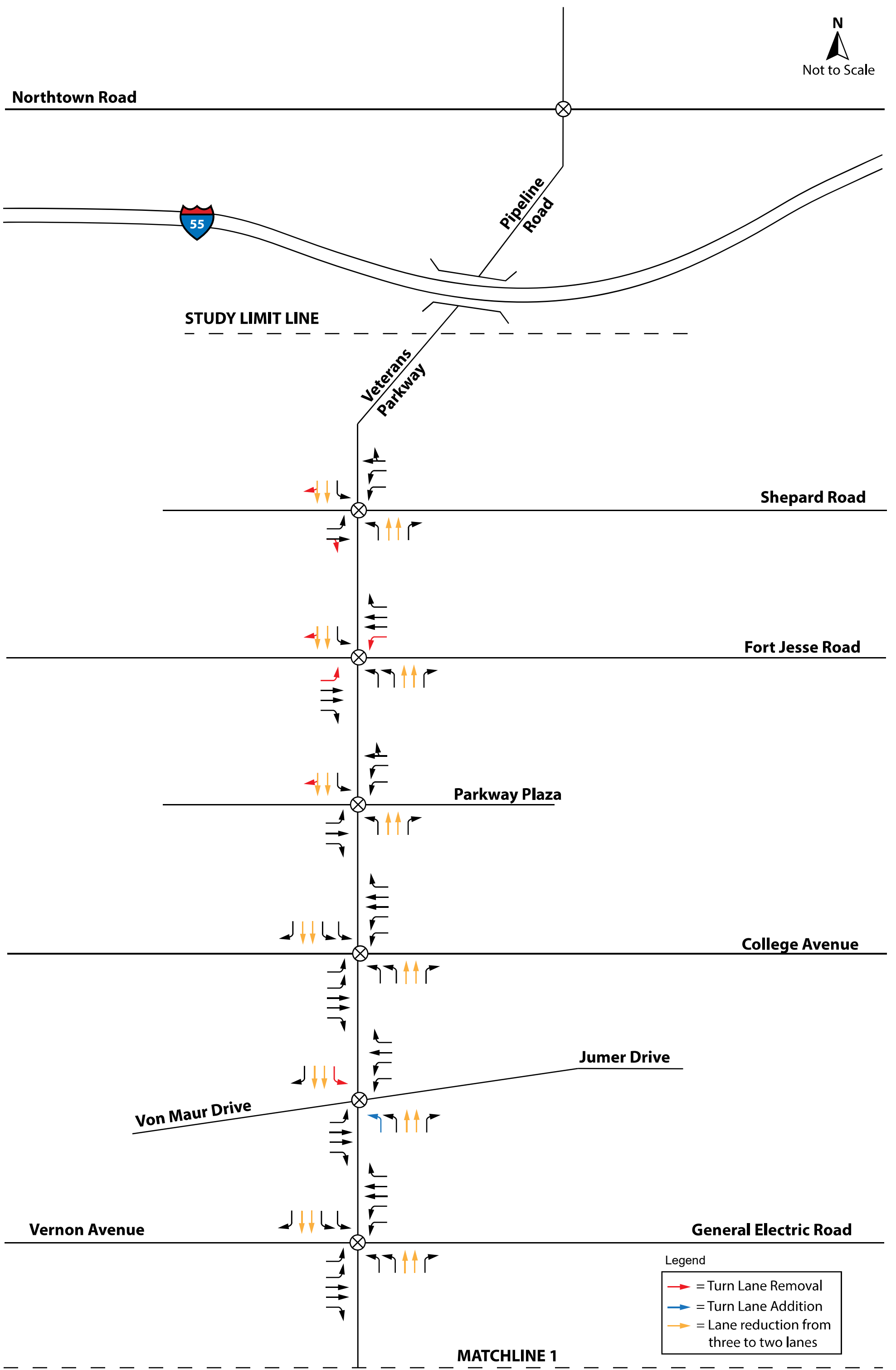
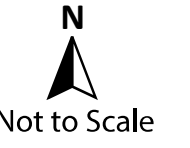
MATCHLINE 2

Legend

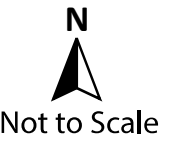
-  = Turn Lane Removal
-  = Turn Lane Addition







MATCHLINE 1



Veterans Parkway

Clearwater Avenue

Empire Street

Eastland Drive




E Washington Street

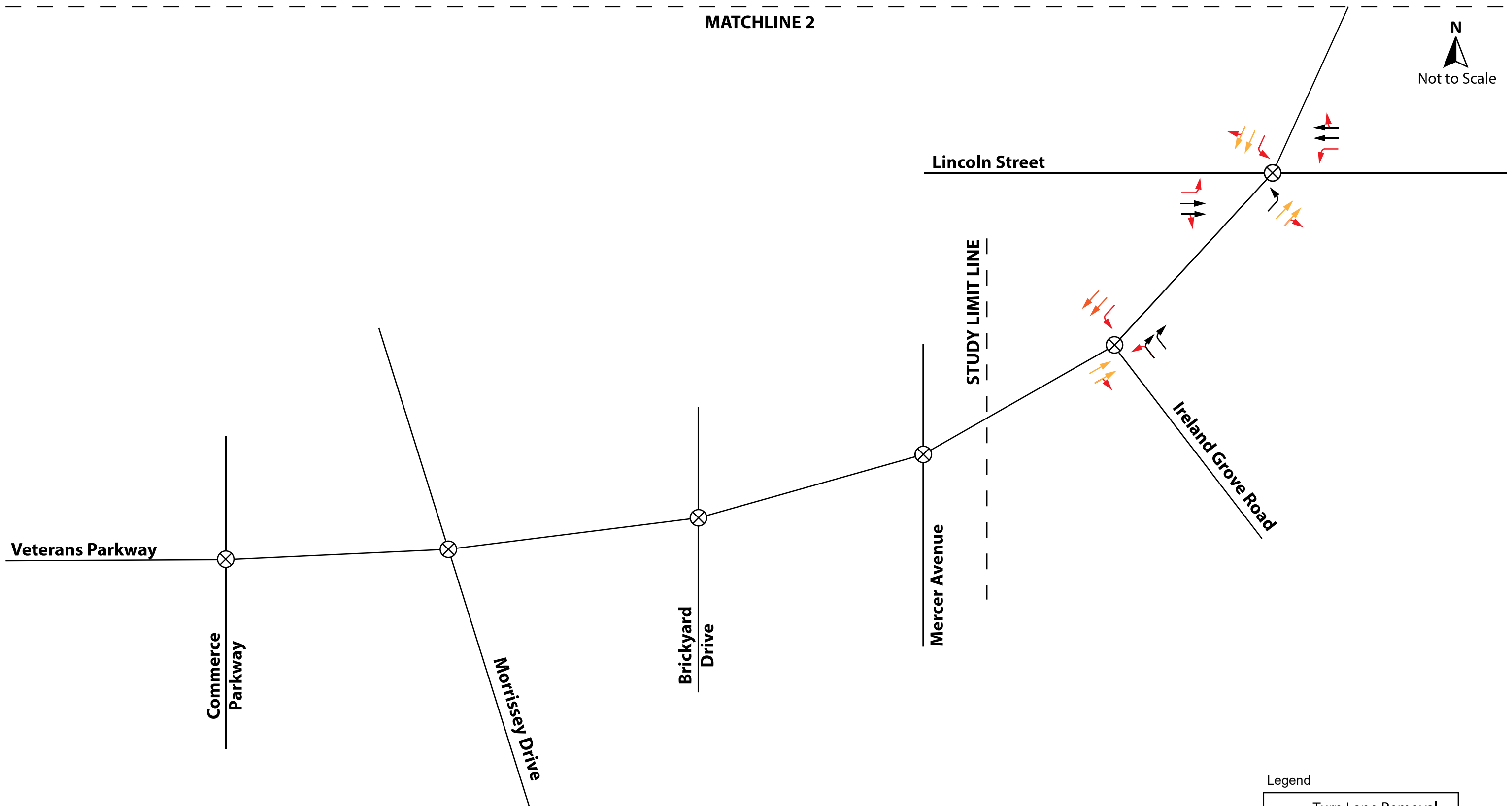
Jackson Street

Oakland Avenue

MATCHLINE 2

Legend

-  = Turn Lane Removal
-  = Turn Lane Addition
-  = Lane reduction from three to two lanes



Capacity Analysis

Table C3: Future (2045) Model 1 Level-of-Service Results

#	Intersection & Approach	Weekday AM Peak Hour					Weekday PM Peak Hour						
		Lane Group	v/c Ratio	Delay (sec)	LOS	95th Percentile Queue Length (ft)	Lane Group	v/c Ratio	Delay (sec)	LOS	95th Percentile Queue Length (ft)		
2	Veterans Parkway & Shepard Road												
	Eastbound	L	0.10	68.4	E	20	L	0.20	70.3	E	38		
		T	0.02	62.5	E	11	T	0.14	64.5	E	37		
		R	0.06	0.5	A	0	R	0.17	1.1	A	0		
	Westbound	L	0.86	79.7	E	274	L	0.85	78.6	E	242		
		TR	0.69	16.1	B	102	TR	0.76	17.1	B	117		
		R	0.18	10.5	B	140	R	0.36	1.1	A	15		
	Northbound	L	0.27	73.1	E	50	L	0.22	32.2	C	52		
		T	0.20	23.0	C	162	T	0.50	7.3	A	81		
		R	0.18	10.5	B	140	R	0.36	1.1	A	15		
Southbound	L	0.65	62.5	E	367	L	0.74	63.2	E	420			
	T	0.35	11.5	B	250	T	0.29	16.2	B	221			
	R	0.01	0.0	A	0	R	0.02	0.0	A	0			
Intersection					27.4	C	Intersection					21.7	C
3	Veterans Parkway & Fort Jesse Road												
	Eastbound	L	0.56	72.8	E	87	L	0.67	73.1	E	129		
		T	0.57	58.2	E	189	T	0.71	59.3	E	252		
		R	0.65	25.5	C	215	R	0.45	18.2	B	180		
	Westbound	L	0.54	71.9	E	88	L	0.64	74.4	E	112		
		T	0.79	68.2	E	250	T	0.77	64.1	E	264		
		R	0.16	2.1	A	12	R	0.22	4.3	A	31		
	Northbound	T	0.23	11.7	B	72	T	0.67	13.2	B	334		
		R	0.09	1.0	A	0	R	0.20	0.7	A	13		
		L	0.71	84.8	F	155	L	0.58	53.6	D	199		
Southbound	T	0.54	20.3	C	209	T	0.51	26.8	C	366			
	R	0.21	4.9	A	46	R	0.24	8.0	A	80			
	Intersection					32.4	C	Intersection					32.8
4	Veterans Parkway & Parkway Plaza												
	Eastbound	L	0.16	69.5	E	32	L	0.68	91.0	F	135		
		T	0.35	72.5	E	63	T	0.50	65.2	E	152		
		R	0.09	0.6	A	0	R	0.21	1.0	A	0		
	Westbound	L	0.50	71.1	E	78	L	0.76	69.1	E	207		
		TR	0.52	41.0	D	88	TR	0.88	61.6	E	321		
		R	0.10	0.6	A	0	R	0.40	1.2	A	15		
	Northbound	L	0.22	58.5	E	70	L	0.37	44.7	D	65		
		T	0.26	3.5	A	42	T	0.76	16.0	B	558		
		R	0.10	0.6	A	0	R	0.40	1.2	A	15		
Southbound	L	0.61	101.9	F	101	L	0.81	77.5	E	306			
	T	0.50	8.7	A	448	T	0.53	29.0	C	446			
	R	0.03	0.0	A	0	R	0.04	2.6	A	14			
Intersection					13.2	B	Intersection					29.9	C
5	Veterans Parkway & College Avenue												
	Eastbound	L	0.51	72.3	E	77	L	0.73	72.3	E	170		
		T	0.72	69.2	E	190	T	0.93	72.5	E	456		
		R	0.65	23.1	C	157	R	0.56	22.3	C	268		
	Westbound	L	0.51	68.7	E	94	L	0.82	81.0	F	191		
		T	0.76	68.0	E	225	T	0.67	55.9	E	292		
		R	0.13	0.6	A	0	R	0.24	4.3	A	32		
	Northbound	L	0.75	64.5	E	150	L	0.79	82.0	F	211		
		T	0.34	14.8	B	317	T	0.90	26.9	C	490		
		R	0.09	1.6	A	8	R	0.36	4.8	A	108		
Southbound	L	0.26	49.5	D	60	L	0.56	48.5	D	111			
	T	0.64	14.8	B	240	T	0.81	28.0	C	554			
	R	0.11	0.4	A	0	R	0.27	8.6	A	71			
Intersection					29.3	C	Intersection					40.0	D
6	Veterans Parkway & Von Maur Drive/Jumer Drive												
	Eastbound	L	0.33	72.5	E	62	L	0.71	91.3	F	163		
		T	0.20	66.0	E	36	T	0.43	69.8	E	74		
		R	0.42	9.2	A	35	R	0.52	23.8	C	209		
	Westbound	L	0.52	71.5	E	87	L	0.73	78.1	E	139		
		T	0.51	79.7	E	98	T	0.82	106.9	F	196		
		R	0.01	0.0	A	0	R	0.15	0.9	A	0		
	Northbound	L	1.07	157.8	F	230	L	0.92	63.9	E	289		
		T	0.30	9.0	A	190	T	0.73	18.0	B	822		
		R	0.09	0.7	A	17	R	0.20	0.6	A	3		
Southbound	L	0.01	102.5	F	1	L	0.22	54.3	D	22			
	T	0.58	7.4	A	93	T	0.78	24.3	C	364			
	R	0.05	0.1	A	0	R	0.11	1.6	A	12			
Intersection					16.2	B	Intersection					27.7	C
Notes: L = Left Turn, T = Through, R = Right Turn, Defl. = Defacto Left Turn; LOS = Level of Service.													

Table C3: Future (2045) Model 1 Level-of-Service Results

#	Intersection & Approach	Weekday AM Peak Hour					Weekday PM Peak Hour				
		Lane Group	v/c Ratio	Delay (sec)	LOS	95th Percentile Queue Length (ft)	Lane Group	v/c Ratio	Delay (sec)	LOS	95th Percentile Queue Length (ft)
7	Veterans Parkway & Vernon Avenue/General Electric Road										
	Eastbound	L	0.68	79.1	E	110	L	0.85	78.4	E	220
		T	0.80	70.1	E	245	T	0.77	62.9	E	275
	Westbound	R	0.57	18.4	B	142	R	0.85	35.4	D	327
		L	0.70	78.1	E	118	L	0.83	89.0	F	157
		T	0.82	70.3	E	256	T	0.82	74.7	E	230
	Northbound	R	0.24	3.2	A	21	R	0.57	17.0	B	110
		L	0.81	63.7	E	209	L	0.71	46.4	D	173
		T	0.45	15.2	B	141	T	0.98	31.4	C	946
	Southbound	R	0.15	0.5	A	2	R	0.21	0.2	A	0
		L	0.62	78.2	E	103	L	0.69	66.7	E	103
		T	0.74	16.0	B	564	T	0.93	37.7	D	780
	R	0.27	1.0	A	3	R	0.32	1.9	A	32	
	Intersection		31.4	C		Intersection		40.3	D		
8	Veterans Parkway & Clearwater Avenue										
	Westbound	L	0.59	65.8	E	138	L	0.56	59.2	E	172
		R	0.64	42.5	D	266	R	0.83	52.9	D	538
	Northbound	T	0.41	4.1	A	71	T	0.94	24.6	C	817
		R	0.14	0.9	A	0	R	0.34	3.1	A	59
	Southbound	L	0.59	54.5	D	125	L	0.73	44.2	D	235
		T	0.52	2.3	A	105	T	0.58	3.7	A	126
	Intersection		10.8	B		Intersection		21.0	C		
9	Veterans Parkway & Empire Street North Junction										
	Eastbound	L	0.51	73.0	E	108	L	0.70	73.6	E	225
	Northbound	T	0.32	0.7	A	23	T	0.63	3.1	A	121
	Southbound	T	0.32	2.4	A	80	T	0.36	4.5	A	100
		R	0.15	0.2	A	0	R	0.22	0.2	A	0
	Intersection		4.3	A		Intersection		8.0	A		
10	Veterans Parkway West Junction & Empire Street										
	Eastbound	L	0.46	63.8	E	97	L	0.53	52.7	D	185
		T	0.13	0.1	A	0	0	0.21	0.1	A	0
	Westbound	T	0.33	0.6	A	2	T	0.36	0.7	A	3
	Southbound	R	0.63	28.0	C	75	R	0.53	14.0	B	65
	Intersection		8.4	A		Intersection		9.0	A		
11	Veterans Parkway & Empire Street										
	Eastbound	T	0.65	51.5	D	278	T	0.92	66.2	E	505
		R	0.20	10.6	B	65	R	0.42	22.0	C	214
	Westbound	T	0.80	57.8	E	355	T	0.70	51.6	D	350
		R	0.20	10.1	B	63	R	0.61	30.6	C	355
	Northbound	L	0.74	59.2	E	175	L	0.68	48.7	D	156
		T	0.47	5.6	A	214	T	0.84	13.4	B	314
	Southbound	L	0.66	75.4	E	138	L	1.00	120.7	F	270
T		0.69	16.6	B	500	T	0.72	14.5	B	112	
	Intersection		27.9	C		Intersection		32.3	C		
12	Veterans Parkway East Junction & Empire Street										
	Eastbound	T	0.32	0.5	A	0	T	0.48	5.3	A	73
	Westbound	L	0.53	49.3	D	200	L	0.35	43.9	D	132
		T	0.16	0.1	A	0	T	0.20	0.1	A	0
	Northbound	R	0.33	4.9	A	41	R	0.51	33.7	C	88
	Intersection		9.8	A		Intersection		11.0	B		
13	Veterans Parkway & Empire Street South Junction										
	Westbound	L	0.80	52.9	D	264	L	0.73	79.0	E	196
	Northbound	T	0.26	0.5	A	16	T	0.39	1.5	A	50
		R	0.18	0.2	A	0	R	0.24	0.2	A	0
	Southbound	T	0.50	0.9	A	12	T	0.51	1.1	A	25
	Intersection		6.0	A		Intersection		5.7	A		
14	Veterans Parkway & Eastland Drive										
	Eastbound	L	0.38	59.3	E	82	L	0.85	73.1	E	328
		T	0.25	66.6	E	44	T	0.36	61.1	E	92
		R	0.09	0.6	A	0	R	0.32	7.3	A	45
	Westbound	L	0.43	61.5	E	95	L	0.65	59.4	E	172
		T	0.34	68.3	E	58	T	0.42	69.6	E	71
		R	0.26	2.8	A	9	R	0.78	34.1	C	156
	Northbound	L	0.57	54.7	D	116	L	0.58	66.0	E	77
		T	0.51	23.6	C	551	T	0.82	17.7	B	717
		R	0.08	2.6	A	33	R	0.17	1.5	A	20
	Southbound	L	0.38	53.5	D	97	L	0.79	65.3	E	174
		T	0.60	8.1	A	163	T	0.74	14.0	B	624
R		0.24	1.2	A	18	R	0.11	0.7	A	6	
	Intersection		18.1	B		Intersection		24.0	C		

Notes: L = Left Turn, T = Through, R = Right Turn, DefL = Defacto Left Turn; LOS = Level of Service.

Table C3: Future (2045) Model 1 Level-of-Service Results

#	Intersection & Approach	Weekday AM Peak Hour					Weekday PM Peak Hour				
		Lane Group	v/c Ratio	Delay (sec)	LOS	95th Percentile Queue Length (ft)	Lane Group	v/c Ratio	Delay (sec)	LOS	95th Percentile Queue Length (ft)
15	Veterans Parkway & Washington Street										
	Eastbound	L	0.57	75.4	E	88	L	0.85	74.1	E	259
		T	0.46	59.4	E	133	T	0.62	58.2	E	218
		R	0.15	0.8	A	3	R	0.51	15.9	B	112
	Westbound	L	0.42	70.5	E	64	L	0.65	71.5	E	130
		T	0.71	67.4	E	190	T	0.65	67.9	E	156
		R	0.38	11.2	B	73	R	0.48	19.6	B	160
	Northbound	L	0.79	54.5	D	359	L	0.79	78.7	E	198
		T	0.58	11.0	B	198	T	0.99	40.8	D	705
		R	0.12	1.0	A	18	R	0.21	2.1	A	9
	Southbound	L	0.67	70.0	E	144	L	0.64	43.5	D	284
		T	0.62	14.5	B	326	T	0.79	25.9	C	692
		R	0.67	14.1	B	596	R	0.22	5.4	A	90
	Intersection		23.5	C		Intersection		38.1	D		
16	Veterans Parkway & Jackson Street										
	Eastbound	L	0.04	64.6	E	10	L	0.31	67.3	E	50
		R	0.04	20.3	C	12	R	0.12	40.6	D	33
	Northbound	L	0.39	78.6	E	63	L	0.01	86.0	F	1
		T	0.43	1.7	A	62	T	0.45	2.1	A	65
	Southbound	T	0.35	1.2	A	34	T	0.55	2.7	A	101
		R	0.13	0.3	A	0	R	0.02	0.0	A	0
	Intersection		3.4	A		Intersection		3.6	A		
17	Veterans Parkway & Oakland Avenue										
	Eastbound	L	0.84	62.0	E	264	L	0.85	54.2	D	324
		TR	0.59	52.8	D	210	TR	0.79	54.9	D	328
	Westbound	L	0.41	38.6	D	120	L	0.67	46.8	D	136
		T	0.78	68.2	E	244	T	0.78	71.2	E	216
		R	0.75	33.0	C	187	R	0.46	9.4	A	63
	Northbound	L	0.61	88.1	F	97	L	0.54	54.5	D	78
		T	0.58	10.7	B	224	T	0.78	33.5	C	573
		R	0.15	0.4	A	0	R	0.26	6.3	A	112
	Southbound	L	0.57	43.6	D	95	L	0.78	52.5	D	211
		T	0.43	5.6	A	54	T	0.69	21.7	C	403
R		0.22	1.0	A	1	R	0.40	2.0	A	44	
	Intersection		26.5	C		Intersection		33.9	C		
18	Veterans Parkway & Lincoln Street										
	Eastbound	L	0.65	78.6	E	96	L	0.64	78.0	E	96
		T	0.36	63.2	E	76	T	0.51	68.3	E	100
		R	0.15	0.9	A	0	R	0.15	0.9	A	0
	Westbound	L	0.38	72.6	E	47	L	0.51	74.8	E	70
		T	0.59	73.9	E	100	T	0.59	73.7	E	100
		R	0.35	5.1	A	17	R	0.44	10.4	B	53
	Northbound	L	0.34	53.7	D	64	L	0.34	61.5	E	80
		T	0.47	1.4	A	31	T	0.48	7.8	A	380
		R	0.08	0.1	A	0	R	0.11	0.6	A	7
	Southbound	L	0.24	72.7	E	29	L	0.51	89.3	F	55
T		0.33	8.4	A	204	T	0.54	7.9	A	70	
R		0.13	2.3	A	33	R	0.09	0.3	A	1	
	Intersection		13.9	B		Intersection		17.4	B		
19	Veterans Parkway & Ireland Grove Road										
	Northwestbound	LR	0.71	69.5	E	157	LR	0.65	64.3	E	150
		R	0.18	21.6	C	105	R	0.30	38.8	D	139
	Northeastbound	T	0.63	30.2	C	427	T	0.47	13.3	B	310
		R	0.21	1.9	A	32	R	0.16	0.8	A	17
	Southwestbound	L	0.22	38.6	D	139	L	0.38	48.6	D	95
T		0.22	0.9	A	20	T	0.42	0.9	A	11	
	Intersection		23.3	C		Intersection		12.4	B		
Notes: L = Left Turn, T= Through, R = Right Turn, DefL = Defacto Left Turn; LOS = Level of Service.											

Table C4: Future (2045) Model 2 Level-of-Service Results

#	Intersection & Approach	Weekday AM Peak Hour					Weekday PM Peak Hour				
		Lane Group	v/c Ratio	Delay (sec)	LOS	95th Percentile Queue Length (ft)	Lane Group	v/c Ratio	Delay (sec)	LOS	95th Percentile Queue Length (ft)
2	Veterans Parkway & Shepard Road										
	Eastbound	L	0.11	70.6	E	20	L	0.24	75.2	E	39
		TR	0.11	23.4	C	22	TR	0.35	21.8	C	51
	Westbound	L	0.87	80.7	F	249	L	0.90	86.1	F	252
		TR	0.55	8.3	A	71	TR	0.62	9.5	A	85
	Northbound	L	0.44	84.5	F	62	L	0.64	73.2	E	55
		T	0.24	26.1	C	210	T	0.65	23.6	C	561
	Southbound	R	0.21	14.0	B	163	R	0.41	5.3	A	307
		L	0.85	83.4	F	345	L	0.82	69.2	E	483
			TR	0.41	18.6	B	393	TR	0.32	18.6	B
Intersection			32.4	C		Intersection			29.3	C	
3	Veterans Parkway & Fort Jesse Road										
	Eastbound	L	0.62	77.7	E	90	L	0.73	79.6	E	132
		TR	0.83	46.6	D	279	TR	0.89	54.8	D	392
	Westbound	L	0.65	81.7	F	90	L	0.76	86.8	F	127
		TR	0.76	58.9	E	267	TR	0.75	54.7	D	318
	Northbound	L	0.72	67.9	E	129	L	0.82	51.4	D	167
		TR	0.31	25.2	C	189	TR	0.86	18.0	B	131
	Southbound	L	0.73	80.2	F	142	L	0.78	83.4	F	227
		TR	0.72	33.6	C	543	TR	0.79	45.5	D	494
	Intersection			44.1	D		Intersection			43.8	D
4	Veterans Parkway & Parkway Plaza										
	Eastbound	L	0.16	70.3	E	32	L	0.59	79.9	E	124
		TR	0.32	35.5	D	57	TR	0.75	65.1	E	222
	Westbound	L	0.57	77.2	E	81	L	0.78	70.8	E	210
		TR	0.30	22.9	C	62	TR	0.81	50.2	D	297
	Northbound	L	0.54	81.4	F	82	L	0.59	56.6	E	57
		T	0.30	9.8	A	53	T	0.90	27.3	C	768
	Southbound	R	0.12	1.0	A	2	R	0.40	1.1	A	6
		L	0.59	91.6	F	77	L	0.76	58.6	E	214
			TR	0.55	8.0	A	606	TR	0.56	23.9	C
Intersection			14.3	B		Intersection			32.9	C	
5	Veterans Parkway & College Avenue										
	Eastbound	L	0.52	72.9	E	78	L	0.72	71.1	E	168
		T	0.58	57.9	E	154	T	0.89	66.5	E	438
	Westbound	R	0.57	17.3	B	116	R	0.54	20.4	C	254
		L	0.47	66.7	E	97	L	0.76	74.6	E	176
	Northbound	TR	0.69	57.1	E	210	TR	0.81	58.1	E	377
		L	0.74	74.9	E	191	L	0.80	92.3	F	239
	Southbound	T	0.35	25.8	C	364	T	0.92	39.6	D	698
		R	0.09	8.3	A	101	R	0.35	4.5	A	105
			L	0.40	49.4	D	52	L	0.91	96.4	F
		T	0.74	16.4	B	645	T	0.91	44.3	D	645
		R	0.12	1.1	A	1	R	0.29	15.5	B	126
Intersection			31.5	C		Intersection			49.1	D	
6	Veterans Parkway & Von Maur Drive/Jumer Drive										
	Eastbound	L	0.50	92.7	F	72	L	0.60	76.8	E	199
		TR	0.38	18.1	B	41	TR	0.90dr	44.0	D	161
	Westbound	L	0.62	79.4	E	88	L	0.62	68.8	E	133
		TR	0.26	52.4	D	76	TR	0.67	63.3	E	181
	Northbound	L	0.35	78.0	E	85	L	0.75	48.4	D	216
		T	0.34	17.6	B	451	T	0.84	34.0	C	804
	Southbound	R	0.10	6.7	A	120	R	0.22	4.1	A	49
		L	0.03	98.5	F	2	L	0.66	80.7	F	45
			T	0.71	11.4	B	815	T	0.82	26.2	C
		R	0.06	0.1	A	1	R	0.11	1.6	A	4
Intersection			18.7	B		Intersection			34.2	C	
Notes: L = Left Turn, T= Through, R = Right Turn, DefL = Defacto Left Turn; LOS = Level of Service.											

Table C4: Future (2045) Model 2 Level-of-Service Results

#	Intersection & Approach	Weekday AM Peak Hour					Weekday PM Peak Hour				
		Lane Group	v/c Ratio	Delay (sec)	LOS	95th Percentile Queue Length (ft)	Lane Group	v/c Ratio	Delay (sec)	LOS	95th Percentile Queue Length (ft)
7	Veterans Parkway & Vernon Avenue/General Electric Road										
	Eastbound	L	0.70	80.2	F	134	L	0.80	72.1	E	346
		T	0.68	59.3	E	214	T	0.62	53.3	D	270
		R	0.55	17.0	B	120	R	0.78	30.0	C	339
	Westbound	L	0.74	83.0	F	120	L	1.08	147.0	F	193
		T	0.71	60.1	E	221	T	0.73	65.3	E	210
		R	0.23	2.6	A	19	R	0.60	18.8	B	120
	Northbound	L	0.96	98.1	F	243	L	0.78	54.2	D	170
		T	0.49	18.3	B	205	T	1.00	38.6	D	686
		R	0.16	0.7	A	2	R	0.22	2.3	A	10
	Southbound	L	0.67	53.5	D	121	L	1.24	195.1	F	147
		T	0.78	53.8	D	735	T	1.01	45.3	D	758
R		0.28	18.7	B	282	R	0.34	1.9	A	16	
		Intersection	45.1	D		Intersection	47.8	D			
8	Veterans Parkway & Clearwater Avenue										
	Westbound	L	0.48	57.8	E	115	L	0.44	51.3	D	161
		R	0.55	39.5	D	227	R	0.81	50.7	D	524
	Northbound	T	0.47	10.0	B	418	T	0.99	36.2	D	993
		R	0.18	1.9	A	47	R	0.35	3.6	A	101
	Southbound	L	0.42	36.1	D	88	L	0.95	60.6	E	224
T		0.56	5.1	A	254	T	0.64	5.0	A	143	
		Intersection	12.7	B		Intersection	26.7	C			
9	Veterans Parkway & Empire Street North Junction										
	Eastbound	L	0.53	54.7	D	108	L	0.72	45.5	D	225
	Northbound	T	0.33	0.9	A	23	T	0.67	4.0	A	110
	Southbound	T	0.34	1.5	A	8	T	0.38	2.3	A	127
		R	0.16	0.2	A	0	R	0.23	0.3	A	0
		Intersection	3.2	A		Intersection	5.7	A			
10	Veterans Parkway West Junction & Empire Street										
	Eastbound	L	0.46	63.7	E	96	L	0.54	52.6	D	185
		T	0.14	0.1	A	0	T	0.22	0.1	A	0
	Westbound	T	0.35	0.8	A	2	T	0.38	2.9	A	153
		R	0.64	39.1	D	97	R	0.54	13.5	B	111
		Intersection	9.9	A		Intersection	9.6	A			
11	Veterans Parkway & Empire Street										
	Eastbound	T	0.66	51.2	D	277	T	0.91	64.4	E	496
		R	0.20	10.4	B	64	R	0.42	20.8	C	208
	Westbound	T	0.81	57.8	E	355	T	0.69	50.3	D	345
		R	0.20	10.0	A	63	R	0.58	27.3	C	333
	Northbound	L	0.76	53.7	D	176	L	0.66	46.0	D	160
		T	0.50	4.8	A	29	T	0.93	25.3	C	178
	Southbound	L	0.69	75.8	E	141	L	0.86	91.7	F	243
		T	0.73	28.3	C	538	T	0.77	19.3	B	315
		Intersection	31.6	C		Intersection	35.2	D			
12	Veterans Parkway East Junction & Empire Street										
	Eastbound	T	0.34	5.5	A	306	T	0.51	1.0	A	0
		L	0.54	49.2	D	199	L	0.36	43.6	D	131
	Westbound	T	0.16	0.1	A	0	T	0.21	0.1	A	0
		R	0.34	14.1	B	86	R	0.52	12.3	B	21
		Intersection	12.7	B		Intersection	6.4	A			
13	Veterans Parkway & Empire Street South Junction										
	Westbound	L	0.80	53.1	D	264	L	0.73	54.9	D	196
		T	0.27	4.4	A	18	T	0.41	2.4	A	67
	Northbound	R	0.19	0.2	A	0	R	0.25	0.2	A	0
		T	0.52	9.8	A	606	T	0.53	1.2	A	27
		Intersection	11.6	B		Intersection	4.8	A			
14	Veterans Parkway & Eastland Drive										
	Eastbound	L	0.34	52.1	D	65	L	0.92	78.1	E	231
		TR	0.23	37.6	D	38	TR	0.48	29.1	C	85
	Westbound	L	0.40	55.2	E	75	L	0.54	45.9	D	129
		TR	0.42	27.8	C	55	TR	0.69	25.3	C	88
	Northbound	L	0.61	94.9	F	122	L	0.64	55.3	E	104
		T	0.53	3.8	A	263	T	0.92	56.4	E	978
	Southbound	R	0.08	0.2	A	0	R	0.18	5.7	A	24
		L	0.54	45.8	D	90	L	0.82	64.0	E	176
			TR	0.75	7.5	A	848	TR	0.89	21.3	C
		Intersection	11.2	B		Intersection	40.0	D			
Notes: L = Left Turn, T = Through, R = Right Turn, DefL = Defacto Left Turn; LOS = Level of Service.											

Table C4: Future (2045) Model 2 Level-of-Service Results

#	Intersection & Approach	Weekday AM Peak Hour					Weekday PM Peak Hour				
		Lane Group	v/c Ratio	Delay (sec)	LOS	95th Percentile Queue Length (ft)	Lane Group	v/c Ratio	Delay (sec)	LOS	95th Percentile Queue Length (ft)
15	Veterans Parkway & Washington Street										
	Eastbound	L	0.44	67.2	E	86	L	0.81	68.7	E	248
		T	0.34	49.6	D	105	T	0.58	54.8	D	199
		R	0.14	0.6	A	2	R	0.51	26.4	C	172
	Westbound	L	0.51	76.3	E	66	L	0.68	73.8	E	132
		T	0.59	58.5	E	160	T	0.63	66.3	E	153
		R	0.35	9.3	A	61	R	0.48	20.0	B	167
	Northbound	L	0.87	61.6	E	379	L	0.71	98.5	F	186
		T	0.66	12.3	B	450	T	1.04	52.5	D	741
		R	0.14	1.9	A	32	R	0.22	2.7	A	20
	Southbound	L	0.69	54.6	D	142	L	0.69	80.7	F	315
		T	0.70	33.7	C	613	T	0.87	17.5	B	767
		R	0.68	24.4	C	607	R	0.23	0.6	A	0
	Intersection	29.3	C			Intersection	40.3	D			
16	Veterans Parkway & Jackson Street										
	Eastbound	L	0.04	51.6	D	15	L	0.33	60.1	E	82
		R	0.05	13.0	B	15	R	0.15	42.5	D	53
	Northbound	L	0.56	81.0	F	103	L	0.03	86.0	F	1
		T	0.44	2.1	A	166	T	0.50	5.0	A	194
	Southbound	TR	0.44	5.6	A	125	TR	0.62	16.2	B	497
	Intersection	5.6	A			Intersection	11.9	B			
17	Veterans Parkway & Oakland Avenue										
	Eastbound	L	0.99	93.8	F	343	L	0.99	85.5	F	470
		TR	0.42	39.1	D	176	TR	0.66	44.1	D	314
	Westbound	L	0.37	31.5	C	105	L	0.62	40.7	D	133
		TR	0.88	54.5	D	347	TR	0.87	59.1	E	294
	Northbound	L	0.65	73.4	E	105	L	0.65	72.8	E	106
		T	0.71	21.3	C	156	T	0.98	55.5	E	631
		R	0.18	1.8	A	0	R	0.32	7.4	A	33
	Southbound	L	0.71	59.1	E	103	L	0.75	66.4	E	222
		T	0.54	17.4	B	276	T	0.81	44.1	D	504
R		0.25	0.9	A	0	R	0.44	5.9	A	0	
	Intersection	33.0	C			Intersection	48.7	D			
18	Veterans Parkway & Lincoln Street										
	Eastbound	L	0.58	52.5	D	129	L	0.71	66.5	E	133
		TR	0.29	34.1	C	64	TR	0.48	48.9	D	91
	Westbound	L	0.27	42.5	D	60	L	0.41	48.2	D	95
		TR	0.57	37.0	D	90	TR	0.61	33.0	C	92
	Northbound	L	0.47	58.6	E	0	L	0.52	62.1	E	60
		TR	0.55	4.8	A	57	TR	0.61	7.0	A	423
	Southbound	L	0.46	94.4	F	59	L	0.68	94.6	F	89
TR		0.41	7.5	A	406	TR	0.60	9.8	A	669	
	Intersection	13.4	B			Intersection	16.8	B			
19	Veterans Parkway & Ireland Grove Road										
	Northwestbound	LR	0.55	57.0	E	129	LR	0.56	57.3	E	130
		R	0.21	26.2	C	95	R	0.23	29.8	C	105
	Northeastbound	TR	0.69	29.1	C	608	TR	0.66	24.6	C	583
	Southwestbound	L	0.60	48.6	D	282	L	0.43	43.6	D	159
T		0.24	1.1	A	28	T	0.45	1.2	A	43	
	Intersection	24.6	C			Intersection	17.4	B			
Notes: L = Left Turn, T= Through, R = Right Turn, DefL = Defacto Left Turn; LOS = Level of Service.											

Table C5: Future (2045) Model 3 Level-of-Service Results

#	Intersection & Approach	Weekday AM Peak Hour					Weekday PM Peak Hour				
		Lane Group	v/c Ratio	Delay (sec)	LOS	95th Percentile Queue Length (ft)	Lane Group	v/c Ratio	Delay (sec)	LOS	95th Percentile Queue Length (ft)
2	Veterans Parkway & Shepard Road										
	Eastbound	L	0.10	68.8	E	20	L	0.21	70.7	E	38
		TR	0.16	31.1	C	27	TR	0.47	28.6	C	62
	Westbound	L	1.00	108.2	F	288	L	0.85	78.0	E	233
		TR	0.62	12.1	B	101	TR	0.63	10.9	B	112
	Northbound	L	0.33	77.7	E	50	L	0.27	27.7	C	36
		T	0.30	26.3	C	218	T	0.75	12.3	B	303
		R	0.21	5.0	A	96	R	0.41	0.7	A	0
	Southbound	L	0.79	75.9	E	445	L	0.89	80.0	F	425
		TR	0.48	16.1	B	400	TR	0.45	23.8	C	352
Intersection			35.2	D		Intersection			27.0	C	
3	Veterans Parkway & Fort Jesse Road										
	Eastbound	L	0.63	54.4	D	137	L	0.73	51.4	D	189
		T	0.54	57.3	E	181	T	0.59	52.6	D	233
		R	0.61	10.9	B	89	R	0.52	8.0	A	76
	Westbound	L	0.41	42.6	D	119	L	0.55	43.1	D	141
		T	0.78	67.2	E	249	T	0.76	63.5	E	266
	Northbound	R	0.20	1.1	A	0	R	0.29	2.0	A	1
		T	0.33	38.3	D	151	T	0.95	26.8	C	670
	Southbound	R	0.08	8.9	A	27	R	0.20	0.8	A	10
		L	0.75	96.2	F	162	L	0.62	52.6	D	174
TR		0.87	32.6	C	528	TR	0.91	41.4	D	725	
Intersection			42.5	D		Intersection			38.6	D	
4	Veterans Parkway & Parkway Plaza										
	Eastbound	L	0.16	69.3	E	31	L	0.82	116.6	F	167
		T	0.36	73.6	E	64	T	0.51	65.9	E	147
		R	0.08	0.5	A	0	R	0.20	0.9	A	0
	Westbound	L	0.49	70.9	E	78	L	0.85	79.8	E	235
		TR	0.44	36.2	D	88	TR	0.88	61.5	E	318
	Northbound	L	0.24	54.7	D	63	L	0.35	36.5	D	50
		T	0.35	10.7	B	278	T	0.99	27.0	C	496
		R	0.11	1.6	A	12	R	0.40	0.6	A	2
	Southbound	L	0.63	98.6	F	78	L	0.77	60.3	E	237
TR		0.68	9.5	A	748	TR	0.72	32.9	C	621	
Intersection			16.2	B		Intersection			36.7	D	
5	Veterans Parkway & College Avenue										
	Eastbound	L	0.78	105.3	F	91	L	0.70	71.8	E	152
		T	0.59	60.1	E	155	T	0.89	67.3	E	400
		R	0.49	14.4	B	98	R	0.45	17.9	B	185
	Westbound	L	0.54	73.6	E	111	L	0.75	78.7	E	146
		T	0.63	58.3	E	196	T	0.70	57.7	E	293
	Northbound	R	0.12	0.6	A	0	R	0.24	3.4	A	23
		L	0.68	88.5	F	165	L	0.76	70.8	E	145
		T	0.42	18.8	B	198	T	1.05	54.3	D	971
	Southbound	R	0.07	1.6	A	11	R	0.27	2.5	A	15
L		0.47	79.1	E	48	L	0.95	101.6	F	110	
T		0.83	39.0	D	862	T	0.98	46.3	D	818	
R	0.10	3.3	A	28	R	0.23	8.4	A	45		
Intersection			40.2	D		Intersection			51.4	D	
6	Veterans Parkway & Von Maur Drive/Jumer Drive										
	Eastbound	L	0.31	70.8	E	62	L	0.71	91.3	F	163
		T	0.12	55.6	E	30	T	0.37	66.3	E	74
		R	0.29	3.5	A	19	R	0.59	27.6	C	216
	Westbound	L	0.44	69.0	E	74	L	0.56	68.9	E	110
		T	0.34	61.5	E	81	T	0.69	85.9	F	161
	Northbound	R	0.01	0.0	A	0	R	0.12	0.6	A	0
		L	0.63	86.7	F	156	L	0.71	71.9	E	156
		T	0.42	23.3	C	515	T	0.94	21.0	C	397
	Southbound	R	0.08	5.3	A	46	R	0.17	1.2	A	11
L		0.02	74.5	E	1	L	0.33	83.7	F	31	
T		0.86	34.9	C	1080	T	0.90	46.6	D	815	
R	0.06	2.2	A	9	R	0.11	4.8	A	28		
Intersection			32.5	C		Intersection			36.9	D	
























Table C5: Future (2045) Model 3 Level-of-Service Results

#	Intersection & Approach	Weekday AM Peak Hour					Weekday PM Peak Hour				
		Lane Group	v/c Ratio	Delay (sec)	LOS	95th Percentile Queue Length (ft)	Lane Group	v/c Ratio	Delay (sec)	LOS	95th Percentile Queue Length (ft)
7	Veterans Parkway & Vernon Avenue/General Electric Road										
	Eastbound	L	0.60	76.5	E	88	L	0.97	110.6	F	227
		T	0.81	70.6	E	240	T	0.91	80.3	F	326
		R	0.42	11.7	B	84	R	0.81	39.5	D	300
	Westbound	L	0.63	76.5	E	97	L	0.95	123.1	F	151
		T	0.81	69.8	E	246	T	0.87	81.6	F	246
		R	0.21	1.9	A	9	R	0.53	16.5	B	94
	Northbound	L	0.62	52.8	D	142	L	0.97	58.8	E	128
		T	0.59	16.2	B	309	T	1.09	57.0	E	1012
		R	0.12	2.1	A	25	R	0.15	0.0	A	0
	Southbound	L	0.58	69.0	E	67	L	1.02	119.5	F	105
		T	0.95	30.4	C	984	T	0.95	51.2	D	917
		R	0.21	0.9	A	1	R	0.23	11.5	B	107
Intersection			35.5	D		Intersection			58.6	E	
8	Veterans Parkway & Clearwater Avenue										
	Westbound	L	0.42	58.6	E	95	L	0.49	59.2	E	139
		R	0.51	36.1	D	175	R	0.79	57.2	E	429
	Northbound	T	0.53	13.1	B	284	T	1.07	62.8	E	1304
		R	0.11	1.0	A	6	R	0.26	2.5	A	51
	Southbound	L	0.58	64.1	E	73	L	0.88	64.0	E	169
		T	0.67	15.4	B	582	T	0.73	9.3	A	366
Intersection			19.3	B		Intersection			39.7	D	
9	Veterans Parkway & Empire Street North Junction										
	Eastbound	L	0.44	54.6	D	85	L	0.66	54.4	D	172
	Northbound	T	0.29	2.7	A	129	T	0.56	4.2	A	165
	Southbound	T	0.29	3.5	A	165	T	0.32	2.2	A	49
		R	0.12	0.1	A	0	R	0.17	0.2	A	0
Intersection			4.7	A		Intersection			5.9	A	
10	Veterans Parkway West Junction & Empire Street										
	Eastbound	L	0.41	65.0	E	78	L	0.49	56.2	E	146
		T	0.14	0.1	A	0	T	0.23	0.1	A	0
	Westbound	T	0.34	0.6	A	2	T	0.37	0.6	A	3
		R	0.52	18.8	B	59	R	0.48	29.5	C	100
Intersection			5.8	A		Intersection			8.9	A	
11	Veterans Parkway & Empire Street										
	Eastbound	T	0.70	51.3	D	313	T	0.90	62.2	E	519
		R	0.14	6.0	A	37	R	0.32	16.8	B	139
	Westbound	T	0.83	57.8	E	387	T	0.72	48.5	D	391
		R	0.14	5.9	A	37	R	0.42	20.5	C	207
	Northbound	L	0.56	45.0	D	120	L	0.77	65.8	E	141
		T	0.45	4.0	A	64	T	0.86	21.0	C	404
	Southbound	L	0.58	66.7	E	108	L	0.80	73.8	E	184
		T	0.66	25.7	C	608	T	0.69	28.6	C	458
Intersection			30.4	C		Intersection			35.9	D	
12	Veterans Parkway East Junction & Empire Street										
	Eastbound	T	0.32	0.4	A	0	T	0.48	2.6	A	53
		L	0.52	53.6	D	167	L	0.35	49.3	D	116
	Westbound	T	0.16	0.1	A	0	T	0.21	0.1	A	0
		R	0.30	3.6	A	14	R	0.49	41.5	D	94
Intersection			8.6	A		Intersection			9.6	A	
13	Veterans Parkway & Empire Street South Junction										
	Westbound	L	0.75	53.4	D	210	L	0.67	54.3	D	157
		T	0.23	0.4	A	9	T	0.35	2.9	A	74
	Northbound	R	0.14	0.2	A	0	R	0.19	0.1	A	0
		T	0.44	0.6	A	8	T	0.46	1.7	A	51
Intersection			5.3	A		Intersection			4.8	A	
14	Veterans Parkway & Eastland Drive										
	Eastbound	L	0.26	53.9	D	59	L	0.66	58.0	E	206
		TR	0.33	48.3	D	46	TR	0.56	39.5	D	98
	Westbound	L	0.43	60.2	E	92	L	0.69	62.8	E	166
		T	0.30	65.5	E	56	T	0.39	66.8	E	68
	Northbound	R	0.25	2.4	A	7	R	0.75	30.2	C	146
		L	0.53	64.9	E	75	L	0.50	73.3	E	59
	Southbound	T	0.66	27.2	C	742	T	1.05	47.8	D	1091
		R	0.08	2.6	A	26	R	0.17	0.8	A	14
		L	0.39	51.4	D	101	L	0.75	63.6	E	169
		T	0.74	11.4	B	913	T	0.89	23.8	C	1097
R		0.18	1.1	A	14	R	0.08	0.4	A	0	
Intersection			21.2	C		Intersection			38.3	D	

Table C5: Future (2045) Model 3 Level-of-Service Results

#	Intersection & Approach	Weekday AM Peak Hour					Weekday PM Peak Hour				
		Lane Group	v/c Ratio	Delay (sec)	LOS	95th Percentile Queue Length (ft)	Lane Group	v/c Ratio	Delay (sec)	LOS	95th Percentile Queue Length (ft)
15	Veterans Parkway & Washington Street										
	Eastbound	L	0.44	71.7	E	65	L	0.81	76.3	E	197
		T	0.47	59.0	E	128	T	0.82	74.8	E	244
		R	0.10	0.4	A	0	R	0.40	10.0	A	62
	Westbound	L	0.43	70.8	E	64	L	0.70	76.0	E	134
		T	0.67	64.5	E	182	T	0.72	73.9	E	164
		R	0.37	10.3	B	68	R	0.56	24.2	C	173
	Northbound	L	0.54	40.9	D	193	L	0.67	70.6	E	113
		T	0.74	17.3	B	570	T	1.04	51.6	D	990
		R	0.13	1.1	A	19	R	0.19	1.6	A	0
	Southbound	L	0.69	76.1	E	123	L	0.92	75.2	E	243
		T	0.87	24.4	C	759	T	0.91	39.0	D	914
R		0.48	5.0	A	150	R	0.16	4.0	A	46	
Intersection					27.1	C	Intersection				
16	Veterans Parkway & Jackson Street										
	Eastbound	L	0.04	52.0	D	16	L	0.34	60.6	E	82
		R	0.06	14.6	B	17	R	0.15	35.9	D	49
	Northbound	L	0.61	79.2	E	116	L	0.03	83.5	F	3
		T	0.53	2.9	A	154	T	0.64	5.2	A	161
	Southbound	TR	0.57	5.2	A	142	TR	0.76	9.0	A	1096
Intersection					6.2	A	Intersection				
17	Veterans Parkway & Oakland Avenue										
	Eastbound	L	0.61	45.2	D	151	L	0.77	56.5	E	258
		TR	0.63	54.6	D	197	TR	0.93	74.3	E	403
	Westbound	L	0.35	37.5	D	88	L	0.80	75.3	E	173
		T	0.72	63.7	E	214	T	0.72	68.2	E	211
	Northbound	R	0.52	14.9	B	93	R	0.32	3.9	A	32
		L	0.54	81.7	F	81	L	0.62	81.7	F	57
		T	0.78	19.9	B	748	T	0.99	56.4	E	856
	Southbound	R	0.12	0.7	A	8	R	0.20	2.8	A	34
		L	0.41	40.2	D	67	L	0.60	47.9	D	150
		T	0.60	12.0	B	322	T	0.84	24.0	C	343
	R	0.15	1.1	A	31	R	0.27	1.5	A	0	
Intersection					27.9	C	Intersection				
18	Veterans Parkway & Lincoln Street										
	Eastbound	L	0.57	61.4	E	113	L	0.64	68.6	E	114
		TR	0.33	39.7	D	65	TR	0.41	48.6	D	86
	Westbound	L	0.24	47.1	D	57	L	0.39	53.2	D	83
		TR	0.54	40.2	D	85	TR	0.57	36.4	D	87
	Northbound	L	0.11	3.3	A	3	L	0.22	12.1	B	10
		TR	0.63	3.7	A	59	TR	0.72	10.5	B	880
	Southbound	L	0.15	5.6	A	11	L	0.45	20.5	C	15
TR		0.51	7.5	A	586	TR	0.74	9.3	A	940	
Intersection					11.8	B	Intersection				
19	Veterans Parkway & Ireland Grove Road										
	Northwestbound	LR	0.71	69.4	E	226	LR	0.71	69.0	E	225
		R	0.19	23.3	C	87	R	0.22	27.8	C	96
	Northeastbound	TR	0.83	32.7	C	860	TR	0.84	29.7	C	944
	Southwestbound	L	0.61	53.7	D	236	L	0.48	52.3	D	121
		T	0.36	1.2	A	35	T	0.62	2.1	A	53
Intersection					26.1	C	Intersection				

Lanes, Volumes, Timings
 2: Veterans Pkwy & Shepard Rd

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	2	15	360	10	285	30	510	210	220	1160	10
Future Volume (vph)	5	2	15	360	10	285	30	510	210	220	1160	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	13	12	12	12	12	13	12	13	14	12	13
Storage Length (ft)	160		180	250		0	250		450	455		260
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	140			135			185			185		
Satd. Flow (prot)	1357	1963	1615	3400	1564	0	1865	4940	1605	1816	5036	1284
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1357	1963	1615	3400	1564	0	1865	4940	1605	1816	5036	1284
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			124		294				216			77
Link Speed (mph)		30			40			45				45
Link Distance (ft)		462			1492			2523				3295
Travel Time (s)		10.5			25.4			38.2				49.9
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	33%	0%	0%	3%	0%	4%	0%	5%	4%	6%	3%	30%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	2	15	371	304	0	31	526	216	227	1196	10
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2	3	1	6	7
Permitted Phases			4						2			6
Detector Phase	7	4	5	3	8		5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0		5.0	15.0	5.0	5.0	15.0	5.0
Minimum Split (s)	12.0	20.0	12.5	20.0	20.0		12.5	26.5	20.0	12.5	26.5	12.0
Total Split (s)	17.0	20.0	16.0	23.0	26.0		16.0	76.0	23.0	21.0	81.0	17.0
Total Split (%)	12.1%	14.3%	11.4%	16.4%	18.6%		11.4%	54.3%	16.4%	15.0%	57.9%	12.1%
Maximum Green (s)	10.2	13.5	9.6	16.2	19.5		9.6	70.3	16.2	14.6	75.3	10.2
Yellow Time (s)	4.3	4.0	4.0	4.3	4.0		4.0	4.5	4.3	4.0	4.5	4.3
All-Red Time (s)	2.5	2.5	2.4	2.5	2.5		2.4	1.2	2.5	2.4	1.2	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.5	6.4	6.8	6.5		6.4	5.7	6.8	6.4	5.7	6.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lag	Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0		2.0	4.5	2.0	2.0	4.5	2.0
Recall Mode	None	None	None	None	None		None	C-Max	None	None	C-Max	None
Act Effct Green (s)	5.4	7.4	10.5	17.7	15.9		8.7	73.4	96.7	27.0	93.9	99.6
Actuated g/C Ratio	0.04	0.05	0.08	0.13	0.11		0.06	0.52	0.69	0.19	0.67	0.71
v/c Ratio	0.10	0.02	0.06	0.86	0.69		0.27	0.20	0.18	0.65	0.35	0.01
Control Delay (s/veh)	68.4	62.5	0.5	79.7	16.1		73.1	23.0	10.5	62.5	11.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	68.4	62.5	0.5	79.7	16.1		73.1	23.0	10.5	62.5	11.5	0.0
LOS	E	E	A	E	B		E	C	B	E	B	A
Approach Delay (s/veh)		21.6			51.0			21.5			19.5	
Approach LOS		C			D			C			B	
90th %ile Green (s)	6.5	9.0	9.6	16.2	18.7		9.6	70.3	16.2	19.1	79.8	6.5
90th %ile Term Code	Gap	Hold	Hold	Max	Gap		Hold	Coord	Max	Max	Coord	Gap

Lanes, Volumes, Timings
 2: Veterans Pkwy & Shepard Rd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
70th %ile Green (s)	5.6	0.0	9.6	23.6	11.5		9.6	70.3	23.6	27.2	87.9	5.6
70th %ile Term Code	Gap	Skip	Hold	Hold	Gap		Hold	Coord	Hold	Max	Coord	Gap
50th %ile Green (s)	0.0	0.0	9.6	16.2	16.5		9.6	78.0	16.2	26.9	95.3	0.0
50th %ile Term Code	Skip	Skip	Hold	Max	Hold		Hold	Coord	Max	Gap	Coord	Skip
30th %ile Green (s)	0.0	0.0	9.6	16.2	16.5		9.6	76.7	16.2	28.2	95.3	0.0
30th %ile Term Code	Skip	Skip	Hold	Max	Hold		Hold	Coord	Max	Gap	Coord	Skip
10th %ile Green (s)	0.0	0.0	0.0	16.2	16.5		0.0	71.5	16.2	33.4	111.3	0.0
10th %ile Term Code	Skip	Skip	Skip	Max	Hold		Skip	Coord	Max	Gap	Coord	Skip
Queue Length 50th (ft)	5	2	0	175	8		27	136	59	193	154	0
Queue Length 95th (ft)	20	11	0	#274	102		50	162	140	#367	250	0
Internal Link Dist (ft)		382			1412			2443			3215	
Turn Bay Length (ft)	160		180	250			250		450	455		260
Base Capacity (vph)	98	189	245	429	470		127	2588	1175	349	3378	977
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.01	0.06	0.86	0.65		0.24	0.20	0.18	0.65	0.35	0.01

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 57 (41%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

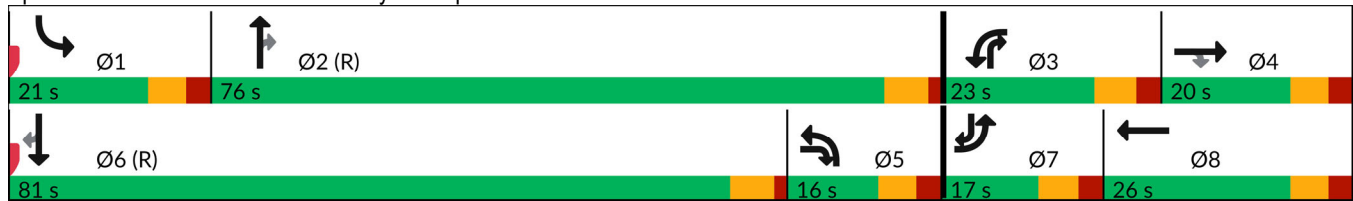
Intersection Signal Delay (s/veh): 27.4 Intersection LOS: C

Intersection Capacity Utilization 60.2% ICU Level of Service B



































Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 2: Veterans Pkwy & Shepard Rd



Lanes, Volumes, Timings
3: Veterans Pkwy & Fort Jesse Rd

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 	 	 	 	 	 	  	 	  		
Traffic Volume (vph)	115	305	340	115	400	80	260	555	85	110	1240	185
Future Volume (vph)	115	305	340	115	400	80	260	555	85	110	1240	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	11	10	12	12	12	12	12	13
Storage Length (ft)	110		225	175		200	245		255	345		575
Storage Lanes	2		1	2		1	2		1	1		1
Taper Length (ft)	190			160			250			205		
Satd. Flow (prot)	2996	3455	1599	3351	3388	1492	3400	5085	1553	1752	5085	1605
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	2996	3455	1599	3351	3388	1492	3400	5085	1553	1752	5085	1605
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			120			123			89			76
Link Speed (mph)		35			30			45				45
Link Distance (ft)		1427			760			1379			2523	
Travel Time (s)		27.8			17.3			20.9			38.2	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	13%	1%	1%	1%	3%	1%	3%	2%	4%	3%	2%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	120	318	354	120	417	83	271	578	89	115	1292	193
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0	5.0	5.0	15.0	5.0	5.0	15.0	5.0
Minimum Split (s)	11.0	21.4	11.0	11.0	28.0	11.0	11.0	21.4	11.0	11.0	21.4	11.0
Total Split (s)	20.0	32.0	23.0	18.0	30.0	22.0	23.0	68.0	18.0	22.0	67.0	20.0
Total Split (%)	14.3%	22.9%	16.4%	12.9%	21.4%	15.7%	16.4%	48.6%	12.9%	15.7%	47.9%	14.3%
Maximum Green (s)	14.0	25.6	17.0	12.0	23.6	16.0	17.0	61.6	12.0	16.0	60.6	14.0
Yellow Time (s)	4.0	4.5	4.0	4.0	4.5	4.0	4.0	4.5	4.0	4.0	4.5	4.0
All-Red Time (s)	2.0	1.9	2.0	2.0	1.9	2.0	2.0	1.9	2.0	2.0	1.9	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.4	6.0	6.0	6.4	6.0	6.0	6.4	6.0	6.0	6.4	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0	2.0	3.0	5.5	2.0	2.0	5.5	2.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Walk Time (s)					7.0							
Flash Don't Walk (s)					14.0							
Pedestrian Calls (#/hr)					0							
Act Effct Green (s)	10.0	22.5	39.9	9.3	21.8	41.1	17.0	70.5	86.2	12.9	66.4	76.8
Actuated g/C Ratio	0.07	0.16	0.29	0.07	0.16	0.29	0.12	0.50	0.62	0.09	0.47	0.55
v/c Ratio	0.56	0.57	0.65	0.54	0.79	0.16	0.66	0.23	0.09	0.71	0.54	0.21
Control Delay (s/veh)	72.8	58.2	25.5	71.9	68.2	2.1	40.2	11.7	1.0	84.8	20.3	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	72.8	58.2	25.5	71.9	68.2	2.1	40.2	11.7	1.0	84.8	20.3	4.9
LOS	E	E	C	E	E	A	D	B	A	F	C	A
Approach Delay (s/veh)		45.8			60.0			18.9			23.1	

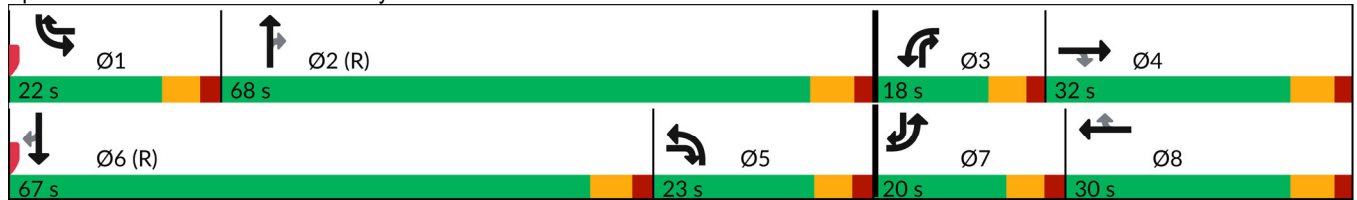
Lanes, Volumes, Timings
 3: Veterans Pkwy & Fort Jesse Rd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			E			B			C		
90th %ile Green (s)	13.3	25.6	17.0	12.0	24.3	16.0	17.0	61.6	12.0	16.0	60.6	13.3
90th %ile Term Code	Gap	Hold	Max	Max	Max	Max	Max	Coord	Max	Max	Coord	Gap
70th %ile Green (s)	11.3	26.0	17.0	10.6	25.3	15.8	17.0	62.8	10.6	15.8	61.6	11.3
70th %ile Term Code	Gap	Hold	Max	Gap	Gap	Gap	Max	Coord	Gap	Gap	Coord	Gap
50th %ile Green (s)	10.0	22.9	17.0	9.4	22.3	13.5	17.0	69.4	9.4	13.5	65.9	10.0
50th %ile Term Code	Gap	Hold	Max	Gap	Gap	Gap	Max	Coord	Gap	Gap	Coord	Gap
30th %ile Green (s)	8.6	20.6	17.0	8.2	20.2	11.2	17.0	75.2	8.2	11.2	69.4	8.6
30th %ile Term Code	Gap	Hold	Max	Gap	Gap	Gap	Max	Coord	Gap	Gap	Coord	Gap
10th %ile Green (s)	6.7	17.2	17.0	6.5	17.0	8.0	17.0	83.5	6.5	8.0	74.5	6.7
10th %ile Term Code	Gap	Hold	Hold	Gap	Gap	Gap	Hold	Coord	Gap	Gap	Coord	Gap
Queue Length 50th (ft)	55	142	145	55	194	0	106	49	1	81	346	27
Queue Length 95th (ft)	87	189	215	88	250	12	118	72	0	m155	209	m46
Internal Link Dist (ft)	1347			680			1299			2443		
Turn Bay Length (ft)	110	225		175	200		245	255		345	575	
Base Capacity (vph)	299	633	541	287	583	555	412	2560	1018	200	2411	958
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.50	0.65	0.42	0.72	0.15	0.66	0.23	0.09	0.58	0.54	0.20

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 79 (56%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.79
 Intersection Signal Delay (s/veh): 32.4 Intersection LOS: C
 Intersection Capacity Utilization 67.3% ICU Level of Service C
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Veterans Pkwy & Fort Jesse Rd



Lanes, Volumes, Timings
4: Veterans Pkwy & Parkway Plaza

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	30	25	100	30	50	30	840	120	65	1605	25
Future Volume (vph)	10	30	25	100	30	50	30	840	120	65	1605	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	11	11	11	11	12	12	12	12	12	12	12
Storage Length (ft)	90		130	0		0	515		545	505		530
Storage Lanes	1		1	2		0	1		1	1		1
Taper Length (ft)	105			25			235			205		
Satd. Flow (prot)	1685	1481	1561	3319	1553	0	1736	5036	1615	1752	5085	1324
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1685	1481	1532	3275	1553	0	1736	5036	1595	1750	5085	1324
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			124		47				126			77
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		397			383			1295			1379	
Travel Time (s)		9.0			8.7			19.6			20.9	
Confl. Peds. (#/hr)			4	4					1	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	24%	0%	2%	19%	0%	4%	3%	0%	3%	2%	22%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	11	32	26	105	85	0	32	884	126	68	1689	26
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2	3	1	6	7
Permitted Phases			4						2			6
Detector Phase	7	4	5	3	8		5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0		5.0	15.0	5.0	5.0	15.0	5.0
Minimum Split (s)	11.8	13.0	11.4	11.8	20.0		11.4	21.4	11.8	12.0	21.4	11.8
Total Split (s)	16.0	17.0	20.0	19.0	20.0		20.0	88.0	19.0	16.0	84.0	16.0
Total Split (%)	11.4%	12.1%	14.3%	13.6%	14.3%		14.3%	62.9%	13.6%	11.4%	60.0%	11.4%
Maximum Green (s)	9.2	11.0	13.6	12.2	13.5		13.6	82.3	12.2	9.6	78.3	9.2
Yellow Time (s)	4.3	4.0	4.0	4.3	4.0		4.0	4.5	4.3	4.0	4.5	4.3
All-Red Time (s)	2.5	2.0	2.4	2.5	2.5		2.4	1.2	2.5	2.4	1.2	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.0	6.4	6.8	6.5		6.4	5.7	6.8	6.4	5.7	6.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lag	Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0		2.0	5.5	2.0	2.0	5.5	2.0
Recall Mode	None	None	None	None	None		None	C-Max	None	None	C-Max	None
Act Effct Green (s)	5.7	8.8	17.6	8.9	11.0		11.9	96.1	103.9	8.9	93.0	99.0
Actuated g/C Ratio	0.04	0.06	0.13	0.06	0.08		0.09	0.69	0.74	0.06	0.66	0.71
v/c Ratio	0.16	0.35	0.09	0.50	0.52		0.22	0.26	0.10	0.61	0.50	0.03
Control Delay (s/veh)	69.5	72.5	0.6	71.1	41.0		58.5	3.5	0.6	101.9	8.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	69.5	72.5	0.6	71.1	41.0		58.5	3.5	0.6	101.9	8.7	0.0
LOS	E	E	A	E	D		E	A	A	F	A	A
Approach Delay (s/veh)		44.9			57.6			4.8			12.2	
Approach LOS		D			E			A			B	
90th %ile Green (s)	7.2	11.6	13.6	11.6	15.5		13.6	82.3	11.6	9.6	78.3	7.2

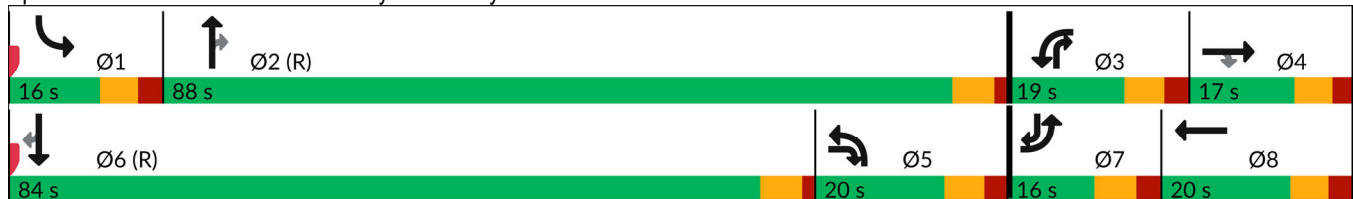
Lanes, Volumes, Timings
 4: Veterans Pkwy & Parkway Plaza

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
90th %ile Term Code	Gap	Max	Hold	Gap	Hold		Hold	Coord	Gap	Max	Coord	Gap
70th %ile Green (s)	6.1	9.8	13.6	9.9	13.1		13.6	83.8	9.9	11.6	81.8	6.1
70th %ile Term Code	Gap	Gap	Hold	Gap	Hold		Hold	Coord	Gap	Gap	Coord	Gap
50th %ile Green (s)	5.4	8.4	13.6	8.8	11.3		13.6	88.1	8.8	9.8	84.3	5.4
50th %ile Term Code	Gap	Gap	Hold	Gap	Hold		Hold	Coord	Gap	Gap	Coord	Gap
30th %ile Green (s)	0.0	0.0	13.6	7.7	8.0		13.6	105.3	7.7	8.1	99.8	0.0
30th %ile Term Code	Skip	Skip	Hold	Gap	Hold		Hold	Coord	Gap	Gap	Coord	Skip
10th %ile Green (s)	0.0	0.0	0.0	6.7	7.0		0.0	120.8	6.7	0.0	120.8	0.0
10th %ile Term Code	Skip	Skip	Skip	Hold	Min		Skip	Coord	Hold	Skip	Coord	Skip
Queue Length 50th (ft)	10	29	0	48	33		27	35	0	55	245	0
Queue Length 95th (ft)	32	63	0	78	88		70	42	0	m101	448	m0
Internal Link Dist (ft)		317			303			1215			1299	
Turn Bay Length (ft)	90		130				515		545	505		530
Base Capacity (vph)	110	117	321	289	196		168	3455	1252	125	3377	989
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.27	0.08	0.36	0.43		0.19	0.26	0.10	0.54	0.50	0.03






























Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 99 (71%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 75
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.61
 Intersection Signal Delay (s/veh): 13.2 Intersection LOS: B
 Intersection Capacity Utilization 60.2% ICU Level of Service B
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Veterans Pkwy & Parkway Plaza



Lanes, Volumes, Timings
 5: Veterans Pkwy & E College Ave

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 		 	  				
Traffic Volume (vph)	95	285	265	125	350	50	230	845	85	65	1565	100
Future Volume (vph)	95	285	265	125	350	50	230	845	85	65	1565	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	12	12	12	12	12	12
Storage Length (ft)	140		315	110		135	415		455	415		505
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (ft)	190			230			230			225		
Satd. Flow (prot)	3255	3355	1531	3286	3455	1432	3502	5085	1509	3400	5085	1553
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3255	3355	1531	3286	3455	1432	3502	5085	1509	3400	5085	1553
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			136			136			139			139
Link Speed (mph)		30			35			45				45
Link Distance (ft)		1820			778			1447			1295	
Travel Time (s)		41.4			15.2			21.9			19.6	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	4%	4%	2%	3%	1%	9%	0%	2%	7%	3%	2%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	101	303	282	133	372	53	245	899	90	69	1665	106
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	9.0	5.0	5.0	9.0	5.0	5.0	10.0	5.0	5.0	10.0	5.0
Minimum Split (s)	12.3	16.0	12.0	12.3	20.0	12.0	12.0	36.0	12.3	12.0	21.4	12.3
Total Split (s)	18.0	27.0	20.0	21.0	30.0	18.0	20.0	74.0	21.0	18.0	72.0	18.0
Total Split (%)	12.9%	19.3%	14.3%	15.0%	21.4%	12.9%	14.3%	52.9%	15.0%	12.9%	51.4%	12.9%
Maximum Green (s)	10.7	20.5	13.0	13.7	23.5	11.0	13.0	67.9	13.7	11.0	65.9	10.7
Yellow Time (s)	4.8	4.0	4.5	4.8	4.0	4.5	4.5	4.5	4.8	4.5	4.5	4.8
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	1.6	2.5	2.5	1.6	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.3	6.5	7.0	7.3	6.5	7.0	7.0	6.1	7.3	7.0	6.1	7.3
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lag	Lag	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	8.6	17.4	30.0	11.0	19.9	30.4	13.1	73.6	90.8	11.0	71.5	86.2
Actuated g/C Ratio	0.06	0.12	0.21	0.08	0.14	0.22	0.09	0.53	0.65	0.08	0.51	0.62
v/c Ratio	0.51	0.72	0.65	0.51	0.76	0.13	0.75	0.34	0.09	0.26	0.64	0.11
Control Delay (s/veh)	72.3	69.2	23.1	68.7	68.0	0.6	64.5	14.8	1.6	49.5	14.8	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	72.3	69.2	23.1	68.7	68.0	0.6	64.5	14.8	1.6	49.5	14.8	0.4
LOS	E	E	C	E	E	A	E	B	A	D	B	A
Approach Delay (s/veh)		50.7			61.7			23.7			15.3	
Approach LOS		D			E			C			B	
90th %ile Green (s)	10.7	20.5	13.0	13.7	23.5	11.0	13.0	67.9	13.7	11.0	65.9	10.7
90th %ile Term Code	Max	Max	Max	Hold	Max	Hold	Max	Coord	Hold	Hold	Coord	Max

Lanes, Volumes, Timings
 5: Veterans Pkwy & E College Ave

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
70th %ile Green (s)	9.9	19.7	15.1	12.4	22.2	11.0	15.1	70.0	12.4	11.0	65.9	9.9	
70th %ile Term Code	Gap	Gap	Max	Hold	Gap	Hold	Max	Coord	Hold	Hold	Coord	Gap	
50th %ile Green (s)	8.7	17.8	14.3	11.2	20.3	11.0	14.3	73.1	11.2	11.0	69.8	8.7	
50th %ile Term Code	Gap	Gap	Gap	Hold	Gap	Hold	Gap	Coord	Hold	Hold	Coord	Gap	
30th %ile Green (s)	7.6	16.0	12.7	9.8	18.2	11.0	12.7	76.3	9.8	11.0	74.6	7.6	
30th %ile Term Code	Gap	Gap	Gap	Hold	Gap	Hold	Gap	Coord	Hold	Hold	Coord	Gap	
10th %ile Green (s)	6.0	13.2	10.3	8.1	15.3	11.0	10.3	80.8	8.1	11.0	81.5	6.0	
10th %ile Term Code	Gap	Gap	Gap	Hold	Gap	Hold	Gap	Coord	Hold	Hold	Coord	Gap	
Queue Length 50th (ft)	46	141	89	60	173	0	96	154	0	33	513	0	
Queue Length 95th (ft)	77	190	157	94	225	0	#150	317	8	60	240	0	
Internal Link Dist (ft)	1740					698			1367			1215	
Turn Bay Length (ft)	140		315	110		135	415		455	415		505	
Base Capacity (vph)	248	491	440	321	579	417	342	2674	996	267	2598	1031	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.41	0.62	0.64	0.41	0.64	0.13	0.72	0.34	0.09	0.26	0.64	0.10	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 101 (72%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay (s/veh): 29.3 Intersection LOS: C

Intersection Capacity Utilization 73.1% ICU Level of Service D

Analysis Period (min) 15

























95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 5: Veterans Pkwy & E College Ave



Lanes, Volumes, Timings

6: Veterans Pkwy & Von Maur Dr/Jumer Dr

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	35	110	115	55	5	105	1125	120	2	1900	55
Future Volume (vph)	30	35	110	115	55	5	105	1125	120	2	1900	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	12	12	12	12	12	12
Storage Length (ft)	90		120	145		225	555		695	530		590
Storage Lanes	1		1	1		1	1		1	2		1
Taper Length (ft)	80			115			220			250		
Satd. Flow (prot)	1745	3292	1501	3351	1749	1561	1752	5085	1599	3502	5085	1615
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1745	3292	1501	3351	1749	1561	1752	5085	1599	3502	5085	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			129			129			122			86
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		275			1066			1370			1447	
Travel Time (s)		6.3			24.2			20.8			21.9	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	6%	4%	1%	5%	0%	3%	2%	1%	0%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	31	36	112	117	56	5	107	1148	122	2	1939	56
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0	5.0	5.0	10.0	5.0	5.0	10.0	5.0
Minimum Split (s)	12.0	60.0	12.0	12.0	23.0	15.0	12.0	38.5	12.0	15.0	21.4	12.0
Total Split (s)	15.0	15.0	15.0	16.0	16.0	15.0	15.0	94.0	16.0	15.0	94.0	15.0
Total Split (%)	10.7%	10.7%	10.7%	11.4%	11.4%	10.7%	10.7%	67.1%	11.4%	10.7%	67.1%	10.7%
Maximum Green (s)	9.0	8.0	8.0	10.0	9.0	8.0	8.0	87.5	10.0	8.0	87.5	9.0
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	5.0	4.5	4.0	5.0	4.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	7.0	7.0	6.0	7.0	7.0	7.0	6.5	6.0	7.0	6.5	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Walk Time (s)		5.0				5.0		7.0		5.0		
Flash Don't Walk (s)		11.0				5.0		14.0		5.0		
Pedestrian Calls (#/hr)		0				0		0		0		
Act Effct Green (s)	7.6	7.5	14.1	9.4	8.8	21.5	8.0	103.8	120.9	5.6	91.3	99.5
Actuated g/C Ratio	0.05	0.05	0.10	0.07	0.06	0.15	0.06	0.74	0.86	0.04	0.65	0.71
v/c Ratio	0.33	0.20	0.42	0.52	0.51	0.01	1.07	0.30	0.09	0.01	0.58	0.05
Control Delay (s/veh)	72.5	66.0	9.2	71.5	79.7	0.0	157.8	9.0	0.7	102.5	7.4	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	72.5	66.0	9.2	71.5	79.7	0.0	157.8	9.0	0.7	102.5	7.4	0.1
LOS	E	E	A	E	E	A	F	A	A	F	A	A
Approach Delay (s/veh)		31.6			72.1			19.8			7.3	

Lanes, Volumes, Timings
 6: Veterans Pkwy & Von Maur Dr/Jumer Dr

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	C			E			B			A		
90th %ile Green (s)	9.0	8.0	8.0	10.0	9.0	5.9	8.0	89.6	10.0	5.9	87.5	9.0
90th %ile Term Code	Max	Max	Max	Max	Max	Gap	Max	Coord	Max	Gap	Coord	Max
70th %ile Green (s)	9.0	8.0	8.0	10.0	9.0	0.0	8.0	102.5	10.0	0.0	87.5	9.0
70th %ile Term Code	Max	Hold	Max	Max	Max	Skip	Max	Coord	Max	Skip	Coord	Max
50th %ile Green (s)	7.9	7.7	8.0	10.0	9.8	0.0	8.0	102.8	10.0	0.0	87.8	7.9
50th %ile Term Code	Gap	Hold	Max	Max	Gap	Skip	Max	Coord	Max	Skip	Coord	Gap
30th %ile Green (s)	6.7	7.0	8.0	9.1	9.4	0.0	8.0	104.4	9.1	0.0	89.4	6.7
30th %ile Term Code	Gap	Min	Max	Gap	Hold	Skip	Max	Coord	Gap	Skip	Coord	Gap
10th %ile Green (s)	0.0	0.0	8.0	8.0	7.0	0.0	8.0	119.5	8.0	0.0	104.5	0.0
10th %ile Term Code	Skip	Skip	Max	Hold	Hold	Skip	Max	Coord	Hold	Skip	Coord	Skip
Queue Length 50th (ft)	28	16	0	54	50	0	~104	99	0	0	281	0
Queue Length 95th (ft)	62	36	35	87	98	0	#230	190	17	m1	93	m0
Internal Link Dist (ft)	195			986			1290			1367		
Turn Bay Length (ft)	90		120	145		225	555		695	530		590
Base Capacity (vph)	112	188	267	239	115	372	100	3768	1390	200	3317	1187
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.19	0.42	0.49	0.49	0.01	1.07	0.30	0.09	0.01	0.58	0.05

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.07
 Intersection Signal Delay (s/veh): 16.2 Intersection LOS: B
 Intersection Capacity Utilization 69.6% ICU Level of Service C
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Veterans Pkwy & Von Maur Dr/Jumer Dr



Lanes, Volumes, Timings

7: Veterans Pkwy & E Vernon Ave/General Electric Rd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	150	390	270	165	415	110	285	1090	145	165	1700	260
Future Volume (vph)	150	390	270	165	415	110	285	1090	145	165	1700	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	12	12	12	12	12	12
Storage Length (ft)	235		140	180		160	530		590	400		685
Storage Lanes	1		1	2		1	2		1	2		1
Taper Length (ft)	80			150			230			210		
Satd. Flow (prot)	3351	3388	1531	3319	3388	1531	3433	5085	1583	3367	5085	1615
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3351	3388	1531	3319	3388	1531	3433	5085	1583	3367	5085	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			140			140			140			140
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		379			486			2185			1370	
Travel Time (s)		8.6			11.0			33.1			20.8	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	1%	3%	2%	2%	3%	2%	2%	2%	2%	4%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	156	406	281	172	432	115	297	1135	151	172	1771	271
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0	5.0	5.0	10.0	5.0	5.0	10.0	5.0
Minimum Split (s)	12.0	20.0	12.0	12.0	20.0	12.0	12.0	21.4	12.0	12.0	21.4	12.0
Total Split (s)	18.0	31.0	22.0	20.0	33.0	22.0	22.0	67.0	20.0	22.0	67.0	18.0
Total Split (%)	12.9%	22.1%	15.7%	14.3%	23.6%	15.7%	15.7%	47.9%	14.3%	15.7%	47.9%	12.9%
Maximum Green (s)	11.0	24.0	15.0	13.0	26.0	15.0	15.0	60.0	13.0	15.0	60.0	11.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lead	Lead	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	2.0	2.5	1.0	2.0	2.0	2.5	4.5	1.0	2.0	4.5	1.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	9.5	20.9	35.9	10.4	21.8	33.3	15.0	69.2	86.6	11.5	65.7	82.2
Actuated g/C Ratio	0.07	0.15	0.26	0.07	0.16	0.24	0.11	0.49	0.62	0.08	0.47	0.59
v/c Ratio	0.68	0.80	0.57	0.70	0.82	0.24	0.81	0.45	0.15	0.62	0.74	0.27
Control Delay (s/veh)	79.1	70.1	18.4	78.1	70.3	3.2	63.7	15.2	0.5	78.2	16.0	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	79.1	70.1	18.4	78.1	70.3	3.2	63.7	15.2	0.5	78.2	16.0	1.0
LOS	E	E	B	E	E	A	E	B	A	E	B	A
Approach Delay (s/veh)		54.5			61.4			22.9			19.0	
Approach LOS		D			E			C			B	
90th %ile Green (s)	11.0	24.0	15.0	13.0	26.0	15.0	15.0	60.0	13.0	15.0	60.0	11.0
90th %ile Term Code	Max	Max	Max	Max	Max	Max	Max	Coord	Max	Max	Coord	Max

Lanes, Volumes, Timings

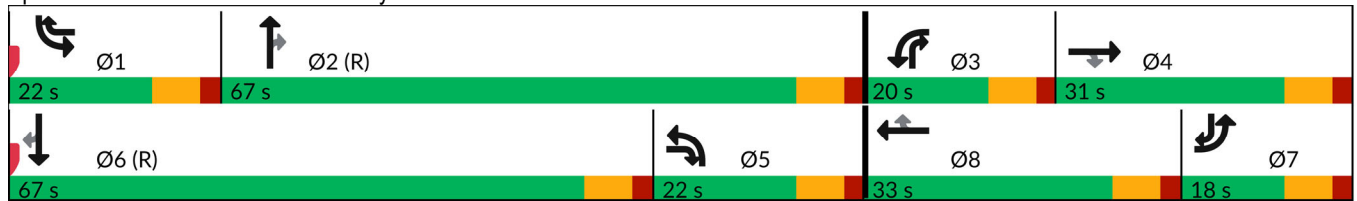
7: Veterans Pkwy & E Vernon Ave/General Electric Rd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
70th %ile Green (s)	11.6	23.8	15.0	12.1	24.3	12.9	15.0	63.2	12.1	12.9	61.1	11.6
70th %ile Term Code	Gap	Hold	Max	Gap	Gap	Gap	Max	Coord	Gap	Gap	Coord	Gap
50th %ile Green (s)	9.9	21.3	15.0	10.7	22.1	11.5	15.0	68.5	10.7	11.5	65.0	9.9
50th %ile Term Code	Gap	Hold	Max	Gap	Gap	Gap	Max	Coord	Gap	Gap	Coord	Gap
30th %ile Green (s)	8.6	19.3	15.0	9.2	19.9	10.1	15.0	73.4	9.2	10.1	68.5	8.6
30th %ile Term Code	Gap	Hold	Max	Gap	Gap	Gap	Max	Coord	Gap	Gap	Coord	Gap
10th %ile Green (s)	6.6	16.1	15.0	7.1	16.6	8.0	15.0	80.8	7.1	8.0	73.8	6.6
10th %ile Term Code	Gap	Hold	Hold	Gap	Gap	Gap	Hold	Coord	Gap	Gap	Coord	Gap
Queue Length 50th (ft)	72	190	81	79	202	0	141	132	0	69	410	1
Queue Length 95th (ft)	110	245	142	118	256	21	#209	141	2	103	564	3
Internal Link Dist (ft)		299			406			2105			1290	
Turn Bay Length (ft)	235		140	180		160	530		590	400		685
Base Capacity (vph)	266	580	496	308	629	505	367	2512	1059	360	2385	978
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.70	0.57	0.56	0.69	0.23	0.81	0.45	0.14	0.48	0.74	0.28



















Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 30 (21%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay (s/veh): 31.4 Intersection LOS: C
 Intersection Capacity Utilization 80.1% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 7: Veterans Pkwy & E Vernon Ave/General Electric Rd



Lanes, Volumes, Timings
 8: Veterans Pkwy & Clearwater Ave

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	 		  		 	  
Traffic Volume (vph)	200	255	1265	160	175	1960
Future Volume (vph)	200	255	1265	160	175	1960
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	13	12	12
Storage Length (ft)	0	335		560	380	
Storage Lanes	2	1		1	2	
Taper Length (ft)	25				240	
Satd. Flow (prot)	3286	1501	5085	1620	3400	5085
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3248	1501	5085	1598	3398	5085
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		62		75		
Link Speed (mph)	30		45			45
Link Distance (ft)	1078		2570			2185
Travel Time (s)	24.5		38.9			33.1
Confl. Peds. (#/hr)	5			1	1	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	4%	2%	3%	3%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	213	271	1346	170	186	2085
Turn Type	Prot	pt+ov	NA	pm+ov	Prot	NA
Protected Phases	3	1 3	2	3	1	6
Permitted Phases		3		2		
Detector Phase	3	1 3	2	3	1	6
Switch Phase						
Minimum Initial (s)	8.0		10.0	8.0	6.0	10.0
Minimum Split (s)	20.0		51.0	20.0	17.0	21.4
Total Split (s)	25.0		95.0	25.0	20.0	115.0
Total Split (%)	17.9%		67.9%	17.9%	14.3%	82.1%
Maximum Green (s)	18.0		88.0	18.0	13.0	108.0
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0		7.0	7.0	7.0	7.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	4.0		3.0	4.0	2.0	3.0
Recall Mode	None		C-Max	None	None	C-Max
Walk Time (s)			7.0		5.0	
Flash Don't Walk (s)			17.0		5.0	
Pedestrian Calls (#/hr)			0		0	
Act Effct Green (s)	15.4	35.4	90.6	106.0	13.0	110.6
Actuated g/C Ratio	0.11	0.25	0.65	0.76	0.09	0.79
v/c Ratio	0.59	0.64	0.41	0.14	0.59	0.52
Control Delay (s/veh)	65.8	42.5	4.1	0.9	54.5	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	65.8	42.5	4.1	0.9	54.5	2.3
LOS	E	D	A	A	D	A

Lanes, Volumes, Timings
 8: Veterans Pkwy & Clearwater Ave

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Approach Delay (s/veh)	52.7		3.7			6.6
Approach LOS	D		A			A
90th %ile Green (s)	18.0		88.0	18.0	13.0	108.0
90th %ile Term Code	Max		Coord	Max	Max	Coord
70th %ile Green (s)	18.0		88.0	18.0	13.0	108.0
70th %ile Term Code	Max		Coord	Max	Max	Coord
50th %ile Green (s)	16.2		89.8	16.2	13.0	109.8
50th %ile Term Code	Gap		Coord	Gap	Max	Coord
30th %ile Green (s)	13.7		92.3	13.7	13.0	112.3
30th %ile Term Code	Gap		Coord	Gap	Max	Coord
10th %ile Green (s)	11.3		94.7	11.3	13.0	114.7
10th %ile Term Code	Gap		Coord	Gap	Hold	Coord
Queue Length 50th (ft)	95	170	47	0	91	94
Queue Length 95th (ft)	138	266	71	0	m125	105
Internal Link Dist (ft)	998		2490			2105
Turn Bay Length (ft)		335		560	380	
Base Capacity (vph)	422	452	3289	1258	315	4015
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.60	0.41	0.14	0.59	0.52

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 24 (17%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.64

Intersection Signal Delay (s/veh): 10.8 Intersection LOS: B

Intersection Capacity Utilization 56.2% ICU Level of Service B

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: Veterans Pkwy & Clearwater Ave



Lanes, Volumes, Timings

9: Veterans Pkwy & Empire Street North Junction



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↶↷			↑↑↑	↑↑↑↑	↷
Traffic Volume (vph)	135	0	0	1290	1930	230
Future Volume (vph)	135	0	0	1290	1930	230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	12	12	12	12	13
Storage Length (ft)	0	0	0			480
Storage Lanes	2	0	0			1
Taper Length (ft)	25		25			
Satd. Flow (prot)	3479	0	0	5085	7544	1636
Flt Permitted	0.950					
Satd. Flow (perm)	3479	0	0	5085	7544	1636
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						
Link Speed (mph)	35			45	45	
Link Distance (ft)	383			530	2570	
Travel Time (s)	7.5			8.0	38.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	4%	0%	0%	2%	2%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	141	0	0	1344	2010	240
Turn Type	Prot			NA	NA	pm+ov
Protected Phases	3			2	6	3
Permitted Phases						6
Detector Phase	3			2	6	3
Switch Phase						
Minimum Initial (s)	8.0			15.0	15.0	8.0
Minimum Split (s)	20.0			21.2	21.2	20.0
Total Split (s)	35.0			105.0	105.0	35.0
Total Split (%)	25.0%			75.0%	75.0%	25.0%
Maximum Green (s)	28.7			98.8	98.8	28.7
Yellow Time (s)	4.0			4.0	4.0	4.0
All-Red Time (s)	2.3			2.2	2.2	2.3
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	6.3			6.2	6.2	6.3
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Recall Mode	None			C-Max	C-Max	None
Act Effct Green (s)	11.0			116.5	116.5	140.0
Actuated g/C Ratio	0.08			0.83	0.83	1.00
v/c Ratio	0.51			0.32	0.32	0.15
Control Delay (s/veh)	73.0			0.7	2.4	0.2
Queue Delay	0.0			0.0	0.0	0.0
Total Delay (s/veh)	73.0			0.7	2.4	0.2
LOS	E			A	A	A
Approach Delay (s/veh)	73.0			0.7	2.2	
Approach LOS	E			A	A	
90th %ile Green (s)	14.1			113.4	113.4	14.1
90th %ile Term Code	Gap			Coord	Coord	Gap

Lanes, Volumes, Timings
 9: Veterans Pkwy & Empire Street North Junction



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
70th %ile Green (s)	12.3			115.2	115.2	12.3
70th %ile Term Code	Gap			Coord	Coord	Gap
50th %ile Green (s)	11.0			116.5	116.5	11.0
50th %ile Term Code	Gap			Coord	Coord	Gap
30th %ile Green (s)	9.8			117.7	117.7	9.8
30th %ile Term Code	Gap			Coord	Coord	Gap
10th %ile Green (s)	8.0			119.5	119.5	8.0
10th %ile Term Code	Min			Coord	Coord	Min
Queue Length 50th (ft)	70			16	56	0
Queue Length 95th (ft)	108			23	80	0
Internal Link Dist (ft)	303			450	2490	
Turn Bay Length (ft)						480
Base Capacity (vph)	713			4230	6275	1636
Starvation Cap Reductn	0			527	0	0
Spillback Cap Reductn	0			0	189	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.20			0.36	0.33	0.15

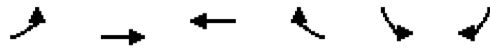
Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 104 (74%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 45
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.51
 Intersection Signal Delay (s/veh): 4.3 Intersection LOS: A
 Intersection Capacity Utilization 42.0% ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 9: Veterans Pkwy & Empire Street North Junction



Lanes, Volumes, Timings
 10: E Empire St & Veterans Parkway West Junction



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔↔	↑↑↑	↑↑			↔↔
Traffic Volume (vph)	135	605	885	0	0	230
Future Volume (vph)	135	605	885	0	0	230
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	245			0	0	0
Storage Lanes	2			0	0	2
Taper Length (ft)	165				25	
Satd. Flow (prot)	3367	4988	3505	0	0	2760
Flt Permitted	0.950					
Satd. Flow (perm)	3367	4988	3505	0	0	2760
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)						145
Link Speed (mph)		35	35		35	
Link Distance (ft)		2754	530		355	
Travel Time (s)		53.6	10.3		6.9	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	4%	4%	3%	0%	0%	3%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	145	651	952	0	0	247
Turn Type	Prot	NA	NA			Over
Protected Phases	4	2 4	2			4
Permitted Phases						
Detector Phase	4	2 4	2			4
Switch Phase						
Minimum Initial (s)	8.0		8.0			8.0
Minimum Split (s)	21.0		21.0			21.0
Total Split (s)	65.0		75.0			65.0
Total Split (%)	46.4%		53.6%			46.4%
Maximum Green (s)	58.7		68.7			58.7
Yellow Time (s)	4.0		4.0			4.0
All-Red Time (s)	2.3		2.3			2.3
Lost Time Adjust (s)	0.0		0.0			0.0
Total Lost Time (s)	6.3		6.3			6.3
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0		2.0			2.0
Recall Mode	None		C-Max			None
Act Effct Green (s)	13.2	140.0	114.2			13.2
Actuated g/C Ratio	0.09	1.00	0.82			0.09
v/c Ratio	0.46	0.13	0.33			0.63
Control Delay (s/veh)	63.8	0.1	0.5			28.0
Queue Delay	0.0	0.0	0.1			0.0
Total Delay (s/veh)	63.8	0.1	0.6			28.0
LOS	E	A	A			C
Approach Delay (s/veh)		11.7	0.6		28.0	
Approach LOS		B	A		C	
90th %ile Green (s)	19.2		108.2			19.2
90th %ile Term Code	Gap		Coord			Gap
70th %ile Green (s)	15.0		112.4			15.0

Lanes, Volumes, Timings
 10: E Empire St & Veterans Parkway West Junction



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
70th %ile Term Code	Gap		Coord			Gap
50th %ile Green (s)	12.4		115.0			12.4
50th %ile Term Code	Gap		Coord			Gap
30th %ile Green (s)	11.1		116.3			11.1
30th %ile Term Code	Gap		Coord			Gap
10th %ile Green (s)	8.2		119.2			8.2
10th %ile Term Code	Gap		Coord			Gap
Queue Length 50th (ft)	65	0	4			31
Queue Length 95th (ft)	97	0	2			75
Internal Link Dist (ft)		2674	450		275	
Turn Bay Length (ft)	245					
Base Capacity (vph)	1411	4988	2859			1241
Starvation Cap Reductn	0	0	675			0
Spillback Cap Reductn	0	0	0			0
Storage Cap Reductn	0	0	0			0
Reduced v/c Ratio	0.10	0.13	0.44			0.20













Intersection Summary

Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Offset:	53 (38%), Referenced to phase 2:EBWB, Start of 1st Green
Natural Cycle:	45
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.63
Intersection Signal Delay (s/veh):	8.4
Intersection LOS:	A
Intersection Capacity Utilization:	43.0%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 10: E Empire St & Veterans Parkway West Junction



Lanes, Volumes, Timings
 11: Veterans Pkwy & E Empire St

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗	↘↘	↑↑↑		↘↘	↑↑↑	
Traffic Volume (vph)	0	515	125	0	645	125	240	1165	0	220	1710	0
Future Volume (vph)	0	515	125	0	645	125	240	1165	0	220	1710	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	3471	1553	0	3539	1583	3433	5085	0	3433	5085	0
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	3471	1553	0	3539	1583	3433	5085	0	3433	5085	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			86			86						
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		530			509			475			530	
Travel Time (s)		10.3			9.9			7.2			8.0	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	4%	4%	0%	2%	2%	2%	2%	0%	2%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	542	132	0	679	132	253	1226	0	232	1800	0
Turn Type		NA	pm+ov		NA	pm+ov	Prot	NA		Prot	NA	
Protected Phases		4	5		8	1	5	2		1	6	
Permitted Phases			4			8						
Detector Phase		4	5		8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)		15.0	5.0		15.0	5.0	5.0	15.0		5.0	15.0	
Minimum Split (s)		22.0	19.0		22.0	12.0	19.0	22.0		12.0	22.0	
Total Split (s)		49.0	21.0		49.0	22.0	21.0	69.0		22.0	70.0	
Total Split (%)		35.0%	15.0%		35.0%	15.7%	15.0%	49.3%		15.7%	50.0%	
Maximum Green (s)		42.0	14.0		42.0	15.0	14.0	62.0		15.0	63.0	
Yellow Time (s)		5.0	5.0		5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)		2.0	2.0		2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	
Lead/Lag			Lag			Lead	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode		None	None		None	None	None	C-Max		None	C-Max	
Act Effct Green (s)		33.4	54.4		33.4	54.7	14.0	71.3		14.2	71.6	
Actuated g/C Ratio		0.24	0.39		0.24	0.39	0.10	0.51		0.10	0.51	
v/c Ratio		0.65	0.20		0.80	0.20	0.74	0.47		0.66	0.69	
Control Delay (s/veh)		51.5	10.6		57.7	10.1	59.2	5.4		75.4	16.4	
Queue Delay		0.0	0.0		0.1	0.0	0.0	0.2		0.0	0.2	
Total Delay (s/veh)		51.5	10.6		57.8	10.1	59.2	5.6		75.4	16.6	
LOS		D	B		E	B	E	A		E	B	
Approach Delay (s/veh)		43.5			50.1			14.8			23.3	
Approach LOS		D			D			B			C	
90th %ile Green (s)		40.7	14.0		40.7	16.3	14.0	62.0		16.3	64.3	
90th %ile Term Code		Hold	Max		Gap	Max	Max	Coord		Max	Coord	
70th %ile Green (s)		36.4	14.0		36.4	16.3	14.0	66.3		16.3	68.6	
70th %ile Term Code		Hold	Max		Gap	Gap	Max	Coord		Gap	Coord	
50th %ile Green (s)		33.1	14.0		33.1	14.7	14.0	71.2		14.7	71.9	
50th %ile Term Code		Hold	Max		Gap	Gap	Max	Coord		Gap	Coord	

Lanes, Volumes, Timings
 11: Veterans Pkwy & E Empire St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
30th %ile Green (s)		30.4	14.0		30.4	13.1	14.0	75.5		13.1	74.6	
30th %ile Term Code		Hold	Max		Gap	Gap	Max	Coord		Gap	Coord	
10th %ile Green (s)		26.5	14.0		26.5	10.8	14.0	81.7		10.8	78.5	
10th %ile Term Code		Hold	Hold		Gap	Gap	Hold	Coord		Gap	Coord	
Queue Length 50th (ft)		236	26		310	26	125	26		93	416	
Queue Length 95th (ft)		278	65		355	63	#175	214		138	500	
Internal Link Dist (ft)		450			429			395			450	
Turn Bay Length (ft)												
Base Capacity (vph)		1041	656		1061	684	343	2591		380	2599	
Starvation Cap Reductn		0	0		31	0	0	464		0	166	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.52	0.20		0.66	0.19	0.74	0.58		0.61	0.74	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 114 (81%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.80

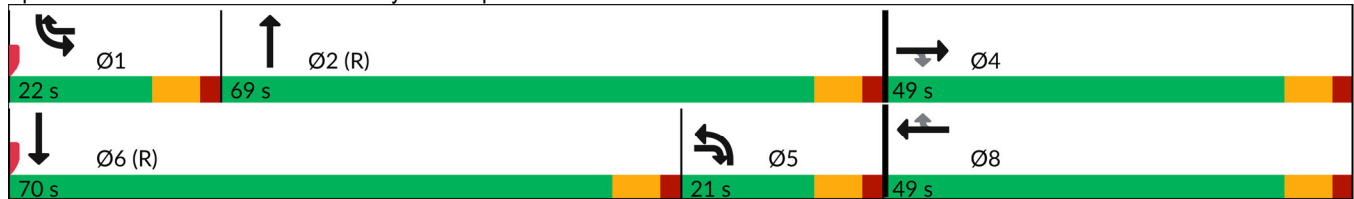
Intersection Signal Delay (s/veh): 27.9 Intersection LOS: C

Intersection Capacity Utilization 75.2% ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 11: Veterans Pkwy & E Empire St

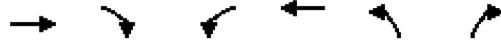


Lanes, Volumes, Timings

12: Veterans Parkway East Junction & E Empire St

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘↙	↑↑↑		↗↗
Traffic Volume (vph)	735	0	400	770	0	275
Future Volume (vph)	735	0	400	770	0	275
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	245		0	0
Storage Lanes		0	2		0	2
Taper Length (ft)			125		25	
Satd. Flow (prot)	3471	0	3433	5085	0	2787
Flt Permitted			0.950			
Satd. Flow (perm)	3471	0	3433	5085	0	2787
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						290
Link Speed (mph)	35			35	35	
Link Distance (ft)	509			2577	334	
Travel Time (s)	9.9			50.2	6.5	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	4%	0%	2%	2%	0%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	758	0	412	794	0	284
Turn Type	NA		Prot	NA		Over
Protected Phases	2		4	2 4		4
Permitted Phases						
Detector Phase	2		4	2 4		4
Switch Phase						
Minimum Initial (s)	15.0		8.0			8.0
Minimum Split (s)	21.4		21.0			21.0
Total Split (s)	80.0		60.0			60.0
Total Split (%)	57.1%		42.9%			42.9%
Maximum Green (s)	73.8		53.7			53.7
Yellow Time (s)	4.0		4.0			4.0
All-Red Time (s)	2.2		2.3			2.3
Lost Time Adjust (s)	0.0		0.0			0.0
Total Lost Time (s)	6.2		6.3			6.3
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0			3.0
Recall Mode	C-Max		None			None
Act Effct Green (s)	96.0		31.5	140.0		31.5
Actuated g/C Ratio	0.69		0.23	1.00		0.23
v/c Ratio	0.32		0.53	0.16		0.33
Control Delay (s/veh)	0.4		49.3	0.1		4.9
Queue Delay	0.1		0.0	0.0		0.0
Total Delay (s/veh)	0.5		49.3	0.1		4.9
LOS	A		D	A		A
Approach Delay (s/veh)	0.5			16.9	4.9	
Approach LOS	A			B	A	
90th %ile Green (s)	84.0		43.5			43.5
90th %ile Term Code	Coord		Gap			Gap
70th %ile Green (s)	91.8		35.7			35.7

Lanes, Volumes, Timings
 12: Veterans Parkway East Junction & E Empire St



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
70th %ile Term Code	Coord		Gap			Gap
50th %ile Green (s)	96.4		31.1			31.1
50th %ile Term Code	Coord		Gap			Gap
30th %ile Green (s)	101.1		26.4			26.4
30th %ile Term Code	Coord		Gap			Gap
10th %ile Green (s)	106.9		20.6			20.6
10th %ile Term Code	Coord		Gap			Gap
Queue Length 50th (ft)	0		172	0		36
Queue Length 95th (ft)	0		200	0		41
Internal Link Dist (ft)	429			2497	254	
Turn Bay Length (ft)			245			
Base Capacity (vph)	2381		1316	5085		1247
Starvation Cap Reductn	493		0	0		0
Spillback Cap Reductn	0		0	0		0
Storage Cap Reductn	0		0	0		0
Reduced v/c Ratio	0.40		0.31	0.16		0.23

Intersection Summary











Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Offset:	70 (50%), Referenced to phase 2:EBWB, Start of 1st Green
Natural Cycle:	45
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.53
Intersection Signal Delay (s/veh):	9.8
Intersection LOS:	A
Intersection Capacity Utilization:	42.1%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 12: Veterans Parkway East Junction & E Empire St



Lanes, Volumes, Timings

13: Veterans Pkwy & Empire Street South Junction

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	400	0	1405	275	0	1835
Future Volume (vph)	400	0	1405	275	0	1835
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		410	0	
Storage Lanes	2	0		1	0	
Taper Length (ft)	25				25	
Satd. Flow (prot)	3433	0	7544	1583	0	5085
Flt Permitted	0.950					
Satd. Flow (perm)	3433	0	7544	1583	0	5085
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)						
Link Speed (mph)	35		45			45
Link Distance (ft)	378		1025			475
Travel Time (s)	7.4		15.5			7.2
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	0%	2%	2%	0%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	417	0	1464	286	0	1911
Turn Type	Prot		NA	pm+ov		NA
Protected Phases	3		2	3		6
Permitted Phases				2		
Detector Phase	3		2	3		6
Switch Phase						
Minimum Initial (s)	6.0		15.0	6.0		15.0
Minimum Split (s)	15.0		23.5	15.0		21.4
Total Split (s)	40.0		100.0	40.0		100.0
Total Split (%)	28.6%		71.4%	28.6%		71.4%
Maximum Green (s)	33.0		94.1	33.0		94.1
Yellow Time (s)	5.0		4.5	5.0		4.5
All-Red Time (s)	2.0		1.4	2.0		1.4
Lost Time Adjust (s)	0.0		0.0	0.0		0.0
Total Lost Time (s)	7.0		5.9	7.0		5.9
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0		2.0	2.0		2.0
Recall Mode	None		C-Max	None		C-Max
Act Effct Green (s)	21.4		105.7	140.0		105.7
Actuated g/C Ratio	0.15		0.76	1.00		0.76
v/c Ratio	0.80		0.26	0.18		0.50
Control Delay (s/veh)	52.9		0.5	0.2		0.8
Queue Delay	0.0		0.0	0.0		0.1
Total Delay (s/veh)	52.9		0.5	0.2		0.9
LOS	D		A	A		A
Approach Delay (s/veh)	52.9		0.5			0.9
Approach LOS	D		A			A
90th %ile Green (s)	26.8		100.3	26.8		100.3
90th %ile Term Code	Gap		Coord	Gap		Coord
70th %ile Green (s)	23.6		103.5	23.6		103.5

Lanes, Volumes, Timings
 13: Veterans Pkwy & Empire Street South Junction



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
70th %ile Term Code	Gap		Coord	Gap		Coord
50th %ile Green (s)	21.4		105.7	21.4		105.7
50th %ile Term Code	Gap		Coord	Gap		Coord
30th %ile Green (s)	19.2		107.9	19.2		107.9
30th %ile Term Code	Gap		Coord	Gap		Coord
10th %ile Green (s)	16.0		111.1	16.0		111.1
10th %ile Term Code	Gap		Coord	Gap		Coord
Queue Length 50th (ft)	209		7	0		9
Queue Length 95th (ft)	264		16	0		12
Internal Link Dist (ft)	298		945			395
Turn Bay Length (ft)				410		
Base Capacity (vph)	809		5695	1581		3839
Starvation Cap Reductn	0		0	0		553
Spillback Cap Reductn	0		17	0		0
Storage Cap Reductn	0		0	0		0
Reduced v/c Ratio	0.52		0.26	0.18		0.58

























Intersection Summary

Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Offset:	106 (76%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
Natural Cycle:	45
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.80
Intersection Signal Delay (s/veh):	6.0
Intersection LOS:	A
Intersection Capacity Utilization	57.6%
ICU Level of Service	B
Analysis Period (min)	15

Splits and Phases: 13: Veterans Pkwy & Empire Street South Junction



Lanes, Volumes, Timings
 14: Veterans Pkwy & Eastland Dr

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	45	25	60	65	85	80	1545	80	125	1845	265
Future Volume (vph)	50	45	25	60	65	85	80	1545	80	125	1845	265
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	12	12	12	12	12	12	12	12	12
Storage Length (ft)	350		105	145		305	535		535	365		555
Storage Lanes	1		1	1		1	1		1	2		1
Taper Length (ft)	215			125			225			230		
Satd. Flow (prot)	1662	3421	1432	1719	3610	1583	1770	5085	1583	3467	5085	1583
Flt Permitted	0.710			0.702			0.950			0.950		
Satd. Flow (perm)	1242	3421	1409	1268	3610	1583	1769	5085	1583	3467	5085	1561
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			137			137			86			276
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		1352			1635			1478			1025	
Travel Time (s)		30.7			37.2			22.4			15.5	
Confl. Peds. (#/hr)			1	1			1					1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	5%	2%	9%	5%	0%	2%	2%	2%	2%	1%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	47	26	63	68	89	83	1609	83	130	1922	276
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases	4		4	8		8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0	5.0	5.0	15.0	5.0	5.0	15.0	5.0
Minimum Split (s)	12.0	35.0	17.0	12.0	29.0	17.0	17.0	41.6	12.0	17.0	54.6	12.0
Total Split (s)	15.0	20.0	18.0	15.0	20.0	21.0	18.0	84.0	15.0	21.0	87.0	15.0
Total Split (%)	10.7%	14.3%	12.9%	10.7%	14.3%	15.0%	12.9%	60.0%	10.7%	15.0%	62.1%	10.7%
Maximum Green (s)	8.0	13.0	11.0	8.0	13.0	14.0	11.0	77.4	8.0	14.0	80.4	8.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.6	5.0	5.0	4.6	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	6.6	7.0	7.0	6.6	7.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	1.5	2.0	3.0	1.5	2.0	3.0	3.0	3.0	1.5	3.0	3.0	1.5
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Walk Time (s)		7.0	5.0		7.0	5.0	5.0	7.0		5.0	7.0	
Flash Don't Walk (s)		15.0	5.0		15.0	5.0	5.0	17.0		5.0	14.0	
Pedestrian Calls (#/hr)		0	0		0	0	0	0		0	0	
Act Effct Green (s)	13.2	7.6	17.8	13.5	7.7	20.3	11.6	86.4	94.6	14.0	88.8	95.4
Actuated g/C Ratio	0.09	0.05	0.13	0.10	0.06	0.15	0.08	0.62	0.68	0.10	0.63	0.68
v/c Ratio	0.38	0.25	0.09	0.43	0.34	0.26	0.57	0.51	0.08	0.38	0.60	0.24
Control Delay (s/veh)	59.3	66.6	0.6	61.5	68.3	2.8	54.7	23.6	2.6	53.5	8.1	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	59.3	66.6	0.6	61.5	68.3	2.8	54.7	23.6	2.6	53.5	8.1	1.2
LOS	E	E	A	E	E	A	D	C	A	D	A	A

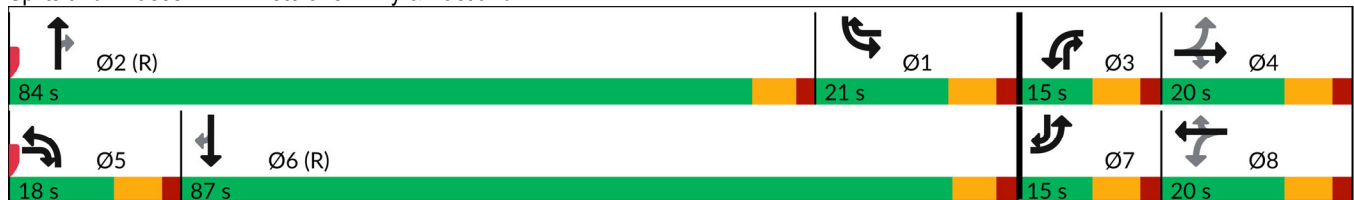
Lanes, Volumes, Timings
 14: Veterans Pkwy & Eastland Dr

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay (s/veh)		49.8			39.8			24.1			9.8	
Approach LOS		D			D			C			A	
90th %ile Green (s)	8.0	9.1	14.9	8.0	9.1	14.0	14.9	81.3	8.0	14.0	80.4	8.0
90th %ile Term Code	Max	Hold	Max	Max	Gap	Hold	Max	Coord	Max	Hold	Coord	Max
70th %ile Green (s)	8.0	7.9	13.8	8.0	7.9	14.0	13.8	82.5	8.0	14.0	82.7	8.0
70th %ile Term Code	Max	Hold	Gap	Max	Gap	Hold	Gap	Coord	Max	Hold	Coord	Max
50th %ile Green (s)	7.8	7.0	11.9	8.0	7.2	14.0	11.9	83.4	8.0	14.0	85.5	7.8
50th %ile Term Code	Gap	Min	Gap	Max	Hold	Hold	Gap	Coord	Max	Hold	Coord	Gap
30th %ile Green (s)	6.4	7.0	10.1	6.9	7.5	14.0	10.1	84.5	6.9	14.0	88.4	6.4
30th %ile Term Code	Gap	Min	Gap	Gap	Hold	Hold	Gap	Coord	Gap	Hold	Coord	Gap
10th %ile Green (s)	5.0	0.0	7.4	5.0	0.0	14.0	7.4	100.4	5.0	14.0	107.0	5.0
10th %ile Term Code	Min	Skip	Gap	Min	Skip	Hold	Gap	Coord	Min	Hold	Coord	Min
Queue Length 50th (ft)	42	22	0	51	32	0	64	506	8	61	146	11
Queue Length 95th (ft)	82	44	0	95	58	9	116	551	33	97	163	18
Internal Link Dist (ft)		1272			1555			1398			945	
Turn Bay Length (ft)	350		105	145		305	535		535	365		555
Base Capacity (vph)	150	317	309	155	335	347	158	3138	1091	346	3225	1162
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.15	0.08	0.41	0.20	0.26	0.53	0.51	0.08	0.38	0.60	0.24
































Intersection Summary

Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Offset:	107 (76%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
Natural Cycle:	120
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.60
Intersection Signal Delay (s/veh):	18.1
Intersection LOS:	B
Intersection Capacity Utilization:	67.2%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 14: Veterans Pkwy & Eastland Dr



Lanes, Volumes, Timings
 15: Veterans Pkwy & E Washington St

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 	 	 	 	 	 	  	 			
Traffic Volume (vph)	110	195	80	75	290	160	240	1435	125	105	1280	545
Future Volume (vph)	110	195	80	75	290	160	240	1435	125	105	1280	545
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	12	11	11	12	12	13	12	12	12
Storage Length (ft)	245		310	160		315	495		490	435		615
Storage Lanes	2		1	2		1	1		1	1		1
Taper Length (ft)	85			155			225			235		
Satd. Flow (prot)	3385	3355	1516	3467	3455	1561	1770	5085	1652	1752	5036	1615
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3385	3355	1497	3467	3455	1538	1769	5085	1652	1752	5036	1592
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			140			140			133			156
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		494			1269			1707			1478	
Travel Time (s)		11.2			28.8			25.9			22.4	
Confl. Peds. (#/hr)							1					1
Confl. Bikes (#/hr)			1			4						1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	4%	3%	1%	1%	0%	2%	2%	1%	3%	3%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	117	207	85	80	309	170	255	1527	133	112	1362	580
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	8.0	5.0	5.0	8.0	5.0	5.0	10.0	5.0	5.0	10.0	5.0
Minimum Split (s)	11.5	26.0	12.5	11.5	22.6	12.5	12.5	50.0	11.5	12.5	45.0	11.5
Total Split (s)	15.0	29.0	33.0	20.0	34.0	26.0	33.0	65.0	20.0	26.0	58.0	15.0
Total Split (%)	10.7%	20.7%	23.6%	14.3%	24.3%	18.6%	23.6%	46.4%	14.3%	18.6%	41.4%	10.7%
Maximum Green (s)	8.5	22.4	25.5	13.5	27.4	18.5	25.5	58.0	13.5	18.5	51.0	8.5
Yellow Time (s)	4.0	4.1	5.0	4.0	4.1	5.0	5.0	4.5	4.0	5.0	4.5	4.0
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.6	7.5	6.5	6.6	7.5	7.5	7.0	6.5	7.5	7.0	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Walk Time (s)		7.0			5.0			7.0			7.0	
Flash Don't Walk (s)		12.0			7.0			20.0			20.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	8.5	18.6	43.2	7.6	17.8	30.2	25.5	72.8	87.5	13.3	60.6	69.6
Actuated g/C Ratio	0.06	0.13	0.31	0.05	0.13	0.22	0.18	0.52	0.63	0.10	0.43	0.50
v/c Ratio	0.57	0.46	0.15	0.42	0.71	0.38	0.79	0.58	0.12	0.67	0.62	0.67
Control Delay (s/veh)	75.4	59.4	0.8	70.5	67.4	11.2	54.5	11.0	1.0	70.0	14.5	14.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	75.4	59.4	0.8	70.5	67.4	11.2	54.5	11.0	1.0	70.0	14.5	14.1

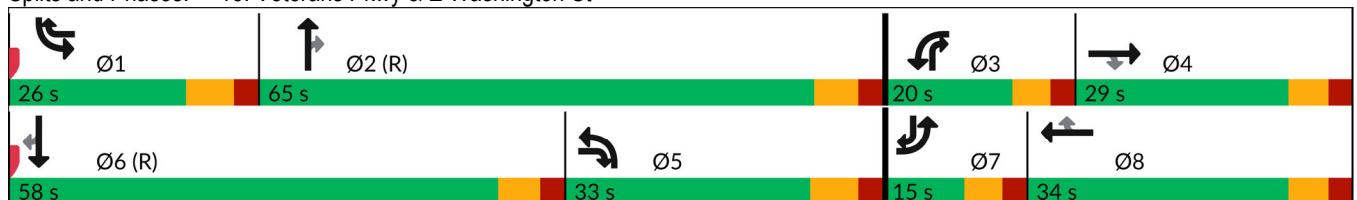
Lanes, Volumes, Timings
 15: Veterans Pkwy & E Washington St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	E	E	A	E	E	B	D	B	A	E	B	B
Approach Delay (s/veh)		51.8			50.7			16.1			17.4	
Approach LOS		D			D			B			B	
90th %ile Green (s)	8.5	20.8	25.5	10.0	22.3	18.7	25.5	62.9	10.0	18.7	56.1	8.5
90th %ile Term Code	Max	Hold	Max	Gap	Gap	Gap	Max	Coord	Gap	Gap	Coord	Max
70th %ile Green (s)	8.5	19.6	25.5	8.6	19.7	15.5	25.5	68.7	8.6	15.5	58.7	8.5
70th %ile Term Code	Max	Hold	Max	Gap	Gap	Gap	Max	Coord	Gap	Gap	Coord	Max
50th %ile Green (s)	8.5	18.7	25.5	7.6	17.8	13.3	25.5	72.8	7.6	13.3	60.6	8.5
50th %ile Term Code	Max	Hold	Hold	Gap	Gap	Gap	Hold	Coord	Gap	Gap	Coord	Max
30th %ile Green (s)	8.5	17.7	25.5	6.7	15.9	11.1	25.5	76.9	6.7	11.1	62.5	8.5
30th %ile Term Code	Max	Hold	Hold	Gap	Gap	Gap	Hold	Coord	Gap	Gap	Coord	Max
10th %ile Green (s)	8.5	16.4	25.5	5.3	13.2	7.8	25.5	82.9	5.3	7.8	65.2	8.5
10th %ile Term Code	Max	Hold	Hold	Gap	Gap	Gap	Hold	Coord	Gap	Gap	Coord	Max
Queue Length 50th (ft)	54	93	0	37	144	21	233	169	0	85	352	423
Queue Length 95th (ft)	88	133	3	64	190	73	#359	198	18	144	326	596
Internal Link Dist (ft)		414			1189			1627			1398	
Turn Bay Length (ft)	245		310	160		315	495		490	435		615
Base Capacity (vph)	205	536	562	334	676	496	322	2645	1145	232	2180	871
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.39	0.15	0.24	0.46	0.34	0.79	0.58	0.12	0.48	0.62	0.67

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 30 (21%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.79
 Intersection Signal Delay (s/veh): 23.5 Intersection LOS: C
 Intersection Capacity Utilization 73.2% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 15: Veterans Pkwy & E Washington St



Lanes, Volumes, Timings
 16: Veterans Pkwy & E Jackson St



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	15	80	1795	1260	175
Future Volume (vph)	5	15	80	1795	1260	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	12	12	12
Storage Length (ft)	0	0	130			570
Storage Lanes	2	2	2			1
Taper Length (ft)	25		185			
Satd. Flow (prot)	3385	2748	3502	5085	5036	1615
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3375	2748	3502	5085	5036	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		16				184
Link Speed (mph)	25			45	45	
Link Distance (ft)	493			666	1707	
Travel Time (s)	13.4			10.1	25.9	
Confl. Peds. (#/hr)	1					
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	2%	3%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	5	16	84	1889	1326	184
Turn Type	Prot	pt+ov	Prot	NA	NA	pm+ov
Protected Phases	3	3 5	5	2	6	3
Permitted Phases						6
Detector Phase	3	3 5	5	2	6	3
Switch Phase						
Minimum Initial (s)	5.0		5.0	10.0	10.0	5.0
Minimum Split (s)	20.0		24.2	20.0	52.5	20.0
Total Split (s)	20.0		30.0	120.0	90.0	20.0
Total Split (%)	14.3%		21.4%	85.7%	64.3%	14.3%
Maximum Green (s)	14.0		23.8	113.5	83.5	14.0
Yellow Time (s)	4.0		4.0	4.3	4.3	4.0
All-Red Time (s)	2.0		2.2	2.2	2.2	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0		6.2	6.5	6.5	6.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None	C-Max	C-Max	None
Walk Time (s)			7.0		7.0	
Flash Don't Walk (s)			7.0		14.0	
Pedestrian Calls (#/hr)			0		0	
Act Effct Green (s)	5.8	20.8	8.7	121.7	106.7	119.1
Actuated g/C Ratio	0.04	0.15	0.06	0.87	0.76	0.85
v/c Ratio	0.04	0.04	0.39	0.43	0.35	0.13
Control Delay (s/veh)	64.6	20.3	78.6	1.6	1.2	0.3
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay (s/veh)	64.6	20.3	78.6	1.7	1.2	0.3
LOS	E	C	E	A	A	A

Lanes, Volumes, Timings
 16: Veterans Pkwy & E Jackson St



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach Delay (s/veh)	30.9			4.9	1.1	
Approach LOS	C			A	A	
90th %ile Green (s)	6.6		11.1	120.9	103.6	6.6
90th %ile Term Code	Gap		Gap	Coord	Coord	Gap
70th %ile Green (s)	5.9		9.7	121.6	105.7	5.9
70th %ile Term Code	Gap		Gap	Coord	Coord	Gap
50th %ile Green (s)	5.7		8.7	121.8	106.9	5.7
50th %ile Term Code	Gap		Gap	Coord	Coord	Gap
30th %ile Green (s)	5.5		7.8	122.0	108.0	5.5
30th %ile Term Code	Gap		Gap	Coord	Coord	Gap
10th %ile Green (s)	5.5		6.4	122.0	109.4	5.5
10th %ile Term Code	Gap		Gap	Coord	Coord	Gap
Queue Length 50th (ft)	2	0	40	63	30	0
Queue Length 95th (ft)	10	12	m63	62	34	0
Internal Link Dist (ft)	413			586	1627	
Turn Bay Length (ft)			130			570
Base Capacity (vph)	338	715	595	4418	3838	1484
Starvation Cap Reductn	0	0	0	826	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.02	0.14	0.53	0.35	0.12

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 14 (10%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.43
 Intersection Signal Delay (s/veh): 3.4 Intersection LOS: A
 Intersection Capacity Utilization 49.3% ICU Level of Service A
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: Veterans Pkwy & E Jackson St



Lanes, Volumes, Timings
 17: Veterans Pkwy & Oakland Ave

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	235	295	65	110	395	310	160	1330	135	125	945	205
Future Volume (vph)	235	295	65	110	395	310	160	1330	135	125	945	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	410		0	280		240	400		450	175		160
Storage Lanes	1		0	1		1	2		1	2		1
Taper Length (ft)	90			115			275			190		
Satd. Flow (prot)	1787	3260	0	1805	3610	1599	3467	5085	1615	3367	5036	1509
Flt Permitted	0.206			0.502			0.950			0.950		
Satd. Flow (perm)	388	3260	0	954	3610	1599	3467	5085	1615	3367	5036	1509
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18				128			142			114
Link Speed (mph)		30			35			45				45
Link Distance (ft)		1460			1350			2739				666
Travel Time (s)		33.2			26.3			41.5				10.1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	9%	2%	0%	0%	1%	1%	2%	0%	4%	3%	7%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	247	379	0	116	416	326	168	1400	142	132	995	216
Turn Type	pm+pt	NA		pm+pt	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases	4			8		8			2			6
Detector Phase	7	4		3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	8.0		5.0	8.0	5.0	5.0	12.0	5.0	5.0	12.0	5.0
Minimum Split (s)	11.0	24.7		11.0	24.7	12.4	12.4	60.0	11.0	12.4	32.0	11.0
Total Split (s)	24.0	44.0		20.0	40.0	17.0	22.0	59.0	20.0	17.0	54.0	24.0
Total Split (%)	17.1%	31.4%		14.3%	28.6%	12.1%	15.7%	42.1%	14.3%	12.1%	38.6%	17.1%
Maximum Green (s)	18.0	37.3		14.0	33.3	9.6	14.6	53.0	14.0	9.6	48.0	18.0
Yellow Time (s)	4.0	4.2		4.0	4.2	4.9	4.9	4.3	4.0	4.9	4.3	4.0
All-Red Time (s)	2.0	2.5		2.0	2.5	2.5	2.5	1.7	2.0	2.5	1.7	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.7		6.0	6.7	7.4	7.4	6.0	6.0	7.4	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	6.0	2.0	2.0	6.0	2.0
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		6.0			6.0			18.0			18.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	44.0	26.9		32.2	20.6	29.5	11.1	66.5	77.4	9.6	64.9	88.2
Actuated g/C Ratio	0.31	0.19		0.23	0.15	0.21	0.08	0.48	0.55	0.07	0.46	0.63
v/c Ratio	0.84	0.59		0.41	0.78	0.75	0.61	0.58	0.15	0.57	0.43	0.22
Control Delay (s/veh)	62.0	52.8		38.6	68.2	33.0	88.1	10.7	0.4	43.6	5.6	1.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	62.0	52.8		38.6	68.2	33.0	88.1	10.7	0.4	43.6	5.6	1.0
LOS	E	D		D	E	C	F	B	A	D	A	A
Approach Delay (s/veh)		56.4			50.9			17.5			8.6	
Approach LOS		E			D			B			A	

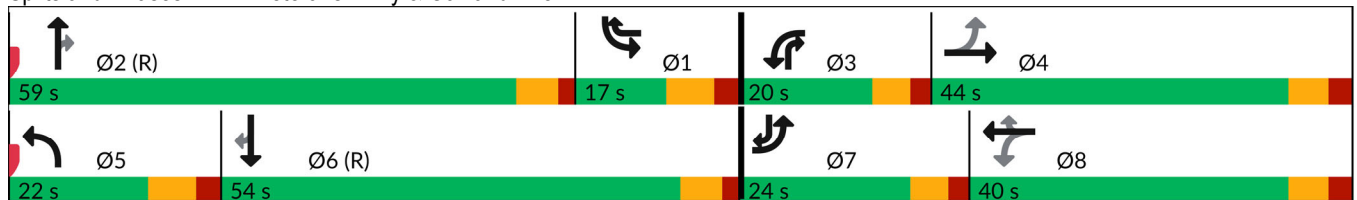
Lanes, Volumes, Timings
 17: Veterans Pkwy & Oakland Ave

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
90th %ile Green (s)	18.0	29.7		14.0	25.7	9.6	14.5	60.6	14.0	9.6	55.7	18.0
90th %ile Term Code	Max	Hold		Max	Gap	Max	Gap	Coord	Max	Max	Coord	Max
70th %ile Green (s)	18.0	28.0		12.7	22.7	9.6	12.5	63.6	12.7	9.6	60.7	18.0
70th %ile Term Code	Max	Hold		Gap	Gap	Max	Gap	Coord	Gap	Max	Coord	Max
50th %ile Green (s)	18.0	27.5		11.1	20.6	9.6	11.1	65.7	11.1	9.6	64.2	18.0
50th %ile Term Code	Max	Hold		Gap	Gap	Max	Gap	Coord	Gap	Max	Coord	Max
30th %ile Green (s)	18.0	26.9		9.6	18.5	9.6	9.8	67.8	9.6	9.6	67.6	18.0
30th %ile Term Code	Max	Hold		Gap	Gap	Max	Gap	Coord	Gap	Max	Coord	Max
10th %ile Green (s)	14.3	22.4		7.3	15.4	9.6	7.8	74.6	7.3	9.6	76.4	14.3
10th %ile Term Code	Gap	Hold		Gap	Gap	Max	Gap	Coord	Gap	Max	Coord	Gap
Queue Length 50th (ft)	177	158		76	194	120	71	97	0	62	44	0
Queue Length 95th (ft)	#264	210		120	244	187	97	224	0	95	54	1
Internal Link Dist (ft)		1380			1270			2659			586	
Turn Bay Length (ft)	410			280		240	400		450	175		160
Base Capacity (vph)	301	881		325	858	437	361	2414	988	230	2335	999
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.43		0.36	0.48	0.75	0.47	0.58	0.14	0.57	0.43	0.22































Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 39 (28%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay (s/veh): 26.5 Intersection LOS: C
 Intersection Capacity Utilization 75.6% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 17: Veterans Pkwy & Oakland Ave



Lanes, Volumes, Timings
 18: Veterans Pkwy & E Lincoln St

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 			  		 		
Traffic Volume (vph)	125	95	50	50	130	100	40	1400	85	30	950	140
Future Volume (vph)	125	95	50	50	130	100	40	1400	85	30	950	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	12	12	12	12	12	12
Storage Length (ft)	190		135	245		345	415		480	365		420
Storage Lanes	2		1	2		1	1		1	2		1
Taper Length (ft)	165			190			240			230		
Satd. Flow (prot)	3286	3172	1516	3286	3421	1501	1805	5085	1615	3502	5085	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3276	3172	1516	3286	3421	1481	1805	5085	1615	3502	5085	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			139			151			90			149
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		528			572			1313			2739	
Travel Time (s)		12.0			13.0			19.9			41.5	
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	10%	3%	3%	2%	4%	0%	2%	0%	0%	2%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	133	101	53	53	138	106	43	1489	90	32	1011	149
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	8.0	5.0	5.0	8.0	5.0	5.0	10.0	5.0	5.0	10.0	5.0
Minimum Split (s)	12.4	30.0	12.0	12.4	21.0	12.0	12.0	56.5	12.4	12.0	54.5	12.4
Total Split (s)	18.0	24.0	18.0	18.0	24.0	18.0	18.0	80.0	18.0	18.0	80.0	18.0
Total Split (%)	12.9%	17.1%	12.9%	12.9%	17.1%	12.9%	12.9%	57.1%	12.9%	12.9%	57.1%	12.9%
Maximum Green (s)	10.6	16.6	11.1	10.6	16.6	12.0	11.1	72.5	10.6	12.0	72.5	10.6
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.4	2.4	1.9	2.4	2.4	1.0	1.9	2.5	2.4	1.0	2.5	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.4	7.4	6.9	7.4	7.4	6.0	6.9	7.5	7.4	6.0	7.5	7.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	3.0	1.0	1.0	3.0	1.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Walk Time (s)		7.0						7.0			7.0	
Flash Don't Walk (s)		15.0						21.0			21.0	
Pedestrian Calls (#/hr)		0						0			0	
Act Effct Green (s)	8.8	12.3	22.7	6.0	9.5	16.2	9.9	88.1	101.6	5.3	85.0	95.4
Actuated g/C Ratio	0.06	0.09	0.16	0.04	0.07	0.12	0.07	0.63	0.73	0.04	0.61	0.68
v/c Ratio	0.65	0.36	0.15	0.38	0.59	0.35	0.34	0.47	0.08	0.24	0.33	0.13
Control Delay (s/veh)	78.6	63.2	0.9	72.6	73.9	5.1	53.7	1.4	0.1	72.7	8.4	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	78.6	63.2	0.9	72.6	73.9	5.1	53.7	1.4	0.1	72.7	8.4	2.3
LOS	E	E	A	E	E	A	D	A	A	E	A	A

Lanes, Volumes, Timings
 18: Veterans Pkwy & E Lincoln St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay (s/veh)	58.9			49.1			2.7			9.4		
Approach LOS	E			D			A			A		
90th %ile Green (s)	10.6	15.1	11.1	7.7	12.2	6.2	11.1	82.7	7.7	6.2	76.9	10.6
90th %ile Term Code	Max	Hold	Hold	Gap	Gap	Gap	Hold	Coord	Gap	Gap	Coord	Max
70th %ile Green (s)	10.4	14.2	11.1	6.5	10.3	5.3	11.1	85.7	6.5	5.3	79.0	10.4
70th %ile Term Code	Gap	Hold	Hold	Gap	Gap	Gap	Hold	Coord	Gap	Gap	Coord	Gap
50th %ile Green (s)	9.1	12.5	11.1	5.7	9.1	5.0	11.1	88.5	5.7	5.0	81.5	9.1
50th %ile Term Code	Gap	Hold	Hold	Gap	Gap	Min	Hold	Coord	Gap	Min	Coord	Gap
30th %ile Green (s)	7.8	10.8	11.1	5.0	8.0	5.0	11.1	90.9	5.0	5.0	83.9	7.8
30th %ile Term Code	Gap	Hold	Hold	Min	Min	Min	Hold	Coord	Min	Min	Coord	Gap
10th %ile Green (s)	5.9	8.9	0.0	5.0	8.0	5.0	0.0	92.8	5.0	5.0	103.8	5.9
10th %ile Term Code	Gap	Hold	Skip	Min	Min	Min	Skip	Coord	Min	Min	Coord	Gap
Queue Length 50th (ft)	61	46	0	24	65	0	40	22	0	12	176	12
Queue Length 95th (ft)	96	76	0	47	100	17	m64	31	m0	29	204	33
Internal Link Dist (ft)	448			492			1233			2659		
Turn Bay Length (ft)	190		135	245		345	415		480	365		420
Base Capacity (vph)	248	376	374	248	405	370	143	3200	1247	300	3088	1155
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.27	0.14	0.21	0.34	0.29	0.30	0.47	0.07	0.11	0.33	0.13

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 117 (84%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.65

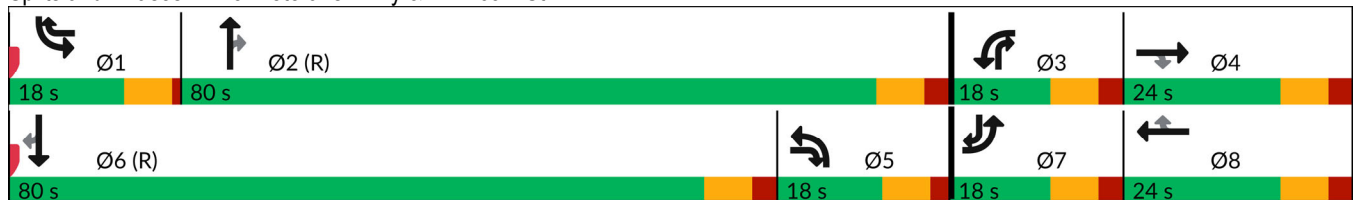
Intersection Signal Delay (s/veh): 13.9 Intersection LOS: B

Intersection Capacity Utilization 62.7% ICU Level of Service B



















Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 18: Veterans Pkwy & E Lincoln St



Lanes, Volumes, Timings
 19: Veterans Pkwy & Ireland Grove Rd

						
Lane Group	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations	 		  		 	  
Traffic Volume (vph)	205	140	1385	200	200	850
Future Volume (vph)	205	140	1385	200	200	850
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		585	340	
Storage Lanes	2	1		1	2	
Taper Length (ft)	25				230	
Satd. Flow (prot)	3396	1441	5036	1538	3467	5036
Flt Permitted	0.959				0.950	
Satd. Flow (perm)	3396	1441	5036	1538	3467	5036
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	10	13		213		
Link Speed (mph)	35		45			45
Link Distance (ft)	485		1559			1313
Travel Time (s)	9.4		23.6			19.9
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	3%	5%	1%	3%
Shared Lane Traffic (%)		23%				
Lane Group Flow (vph)	252	115	1473	213	213	904
Turn Type	Prot	pt+ov	NA	pm+ov	Prot	NA
Protected Phases	4	1 4	2	4	1	6
Permitted Phases				2		
Detector Phase	4	1 4	2	4	1	6
Switch Phase						
Minimum Initial (s)	6.0		10.0	6.0	5.0	10.0
Minimum Split (s)	21.0		21.4	21.0	20.0	20.0
Total Split (s)	23.0		70.0	23.0	47.0	117.0
Total Split (%)	16.4%		50.0%	16.4%	33.6%	83.6%
Maximum Green (s)	15.9		63.3	15.9	40.0	110.3
Yellow Time (s)	5.0		4.5	5.0	5.0	4.5
All-Red Time (s)	2.1		2.2	2.1	2.0	2.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.1		6.7	7.1	7.0	6.7
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		C-Max	None	None	C-Max
Act Effct Green (s)	14.3	61.4	64.9	85.9	40.0	111.9
Actuated g/C Ratio	0.10	0.44	0.46	0.61	0.29	0.80
v/c Ratio	0.71	0.18	0.63	0.21	0.22	0.22
Control Delay (s/veh)	69.5	21.6	30.2	1.9	38.6	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	69.5	21.6	30.2	1.9	38.6	0.9
LOS	E	C	C	A	D	A
Approach Delay (s/veh)	54.5		26.7			8.1
Approach LOS	D		C			A
90th %ile Green (s)	15.9		63.3	15.9	40.0	110.3
90th %ile Term Code	Max		Coord	Max	Hold	Coord
70th %ile Green (s)	15.9		63.3	15.9	40.0	110.3

Lanes, Volumes, Timings
 19: Veterans Pkwy & Ireland Grove Rd

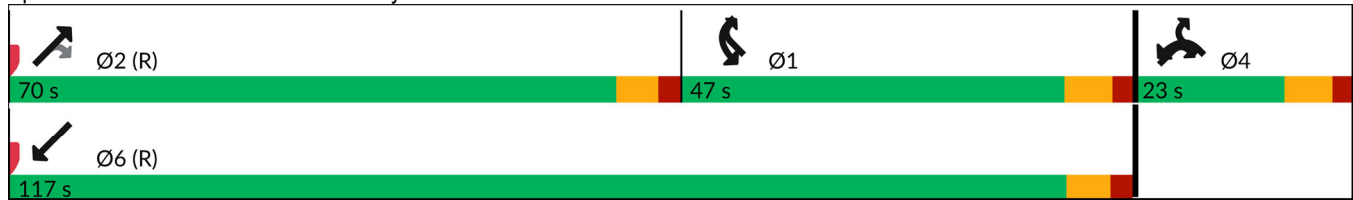


Lane Group	NWL	NWR	NET	NER	SWL	SWT
70th %ile Term Code	Max		Coord	Max	Hold	Coord
50th %ile Green (s)	15.2		64.0	15.2	40.0	111.0
50th %ile Term Code	Gap		Coord	Gap	Hold	Coord
30th %ile Green (s)	13.6		65.6	13.6	40.0	112.6
30th %ile Term Code	Gap		Coord	Gap	Hold	Coord
10th %ile Green (s)	11.1		68.1	11.1	40.0	115.1
10th %ile Term Code	Gap		Coord	Gap	Hold	Coord
Queue Length 50th (ft)	110	60	370	0	96	18
Queue Length 95th (ft)	157	105	427	32	139	20
Internal Link Dist (ft)	405		1479			1233
Turn Bay Length (ft)				585	340	
Base Capacity (vph)	394	655	2332	1000	990	4023
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.18	0.63	0.21	0.22	0.22
























Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 109 (78%), Referenced to phase 2:NET and 6:SWT, Start of 1st Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.71
 Intersection Signal Delay (s/veh): 23.3 Intersection LOS: C
 Intersection Capacity Utilization 57.1% ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 19: Veterans Pkwy & Ireland Grove Rd



Lanes, Volumes, Timings
 2: Veterans Pkwy & Shepard Rd

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	15	55	345	15	350	45	1190	420	300	880	25
Future Volume (vph)	15	15	55	345	15	350	45	1190	420	300	880	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	13	12	12	12	12	13	12	13	14	12	13
Storage Length (ft)	160		180	250		0	250		450	455		260
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	140			135			185			185		
Satd. Flow (prot)	1805	1963	1583	3467	1581	0	1865	5085	1652	1906	5136	1669
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1805	1963	1583	3467	1581	0	1865	5085	1652	1906	5136	1669
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			124		361				433			77
Link Speed (mph)		30			40			45				45
Link Distance (ft)		462			1492			2523				3295
Travel Time (s)		10.5			25.4			38.2				49.9
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	0%	2%	1%	0%	3%	0%	2%	1%	1%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	15	57	356	376	0	46	1227	433	309	907	26
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2	3	1	6	7
Permitted Phases			4						2			6
Detector Phase	7	4	5	3	8		5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0		5.0	15.0	5.0	5.0	15.0	5.0
Minimum Split (s)	12.0	20.0	12.5	20.0	20.0		12.5	26.5	20.0	12.5	26.5	12.0
Total Split (s)	24.0	24.0	25.0	24.0	24.0		25.0	64.0	24.0	28.0	67.0	24.0
Total Split (%)	17.1%	17.1%	17.9%	17.1%	17.1%		17.9%	45.7%	17.1%	20.0%	47.9%	17.1%
Maximum Green (s)	17.2	17.5	18.6	17.2	17.5		18.6	58.3	17.2	21.6	61.3	17.2
Yellow Time (s)	4.3	4.0	4.0	4.3	4.0		4.0	4.5	4.3	4.0	4.5	4.3
All-Red Time (s)	2.5	2.5	2.4	2.5	2.5		2.4	1.2	2.5	2.4	1.2	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.5	6.4	6.8	6.5		6.4	5.7	6.8	6.4	5.7	6.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lag	Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0		2.0	4.5	2.0	2.0	4.5	2.0
Recall Mode	None	None	None	None	None		None	C-Max	None	None	C-Max	None
Act Effct Green (s)	5.9	7.9	19.7	17.0	15.7		15.9	67.2	89.9	30.5	84.1	90.3
Actuated g/C Ratio	0.04	0.06	0.14	0.12	0.11		0.11	0.48	0.64	0.22	0.60	0.65
v/c Ratio	0.20	0.14	0.17	0.85	0.76		0.22	0.50	0.36	0.74	0.29	0.02
Control Delay (s/veh)	70.3	64.5	1.1	78.6	17.1		32.2	7.3	1.1	63.2	16.2	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	70.3	64.5	1.1	78.6	17.1		32.2	7.3	1.1	63.2	16.2	0.0
LOS	E	E	A	E	B		C	A	A	E	B	A
Approach Delay (s/veh)		24.0			47.0			6.4			27.5	
Approach LOS		C			D			A			C	
90th %ile Green (s)	7.5	11.5	18.6	17.2	21.2		18.6	58.3	17.2	27.6	67.3	7.5
90th %ile Term Code	Gap	Hold	Hold	Max	Gap		Hold	Coord	Max	Max	Coord	Gap

Lanes, Volumes, Timings
 2: Veterans Pkwy & Shepard Rd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
70th %ile Green (s)	6.4	7.2	18.6	17.2	18.0		18.6	58.3	17.2	31.9	71.6	6.4
70th %ile Term Code	Gap	Gap	Hold	Max	Hold		Hold	Coord	Max	Max	Coord	Gap
50th %ile Green (s)	5.6	0.0	18.6	19.2	7.1		18.6	70.8	19.2	31.1	83.3	5.6
50th %ile Term Code	Gap	Skip	Hold	Hold	Gap		Hold	Coord	Hold	Gap	Coord	Gap
30th %ile Green (s)	0.0	0.0	18.6	17.2	17.5		18.6	73.1	17.2	30.8	85.3	0.0
30th %ile Term Code	Skip	Skip	Hold	Max	Hold		Hold	Coord	Max	Gap	Coord	Skip
10th %ile Green (s)	0.0	0.0	0.0	14.3	14.6		0.0	75.6	14.3	31.2	113.2	0.0
10th %ile Term Code	Skip	Skip	Skip	Gap	Hold		Skip	Coord	Gap	Gap	Coord	Skip
Queue Length 50th (ft)	14	13	0	162	13		39	64	8	263	142	0
Queue Length 95th (ft)	38	37	0	#242	117		m52	81	15	#420	221	0
Internal Link Dist (ft)		382			1412			2443			3215	
Turn Bay Length (ft)	160		180	250			250		450	455		260
Base Capacity (vph)	221	245	356	435	520		247	2441	1221	415	3086	1247
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.06	0.16	0.82	0.72		0.19	0.50	0.35	0.74	0.29	0.02

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 116 (83%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay (s/veh): 21.7 Intersection LOS: C

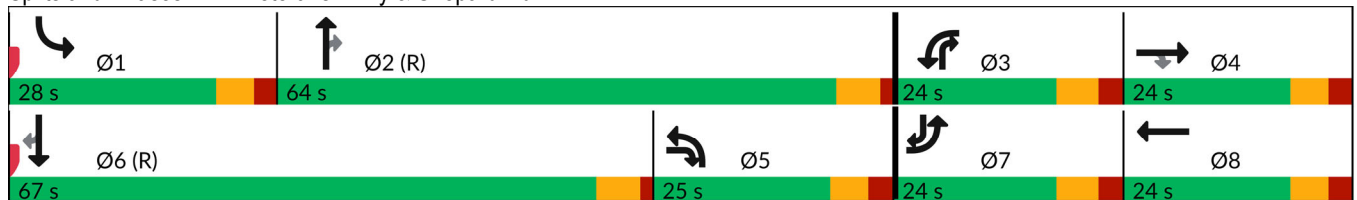
Intersection Capacity Utilization 77.3% ICU Level of Service D

Analysis Period (min) 15




































95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Veterans Pkwy & Shepard Rd



Lanes, Volumes, Timings
 3: Veterans Pkwy & Fort Jesse Rd

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 	 	 	 	 	 	  	 	  	 	
Traffic Volume (vph)	185	440	325	155	445	120	505	1350	170	145	935	200
Future Volume (vph)	185	440	325	155	445	120	505	1350	170	145	935	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	11	10	12	12	12	12	12	13
Storage Length (ft)	110		225	175		200	245		255	345		575
Storage Lanes	2		1	2		1	2		1	1		1
Taper Length (ft)	190			160			250			205		
Satd. Flow (prot)	3319	3490	1615	3385	3490	1463	3502	5085	1615	1752	5136	1669
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3319	3490	1615	3385	3490	1463	3502	5085	1615	1752	5136	1669
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			123			120			172			73
Link Speed (mph)		35			30			45				45
Link Distance (ft)		1427			760			1379				2523
Travel Time (s)		27.8			17.3			20.9				38.2
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	0%	0%	0%	0%	3%	0%	2%	0%	3%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	193	458	339	161	464	125	526	1406	177	151	974	208
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0	5.0	5.0	15.0	5.0	5.0	15.0	5.0
Minimum Split (s)	11.0	21.4	11.0	11.0	28.0	11.0	11.0	21.4	11.0	11.0	21.4	11.0
Total Split (s)	21.0	41.0	40.0	18.0	38.0	27.0	40.0	54.0	18.0	27.0	41.0	21.0
Total Split (%)	15.0%	29.3%	28.6%	12.9%	27.1%	19.3%	28.6%	38.6%	12.9%	19.3%	29.3%	15.0%
Maximum Green (s)	15.0	34.6	34.0	12.0	31.6	21.0	34.0	47.6	12.0	21.0	34.6	15.0
Yellow Time (s)	4.0	4.5	4.0	4.0	4.5	4.0	4.0	4.5	4.0	4.0	4.5	4.0
All-Red Time (s)	2.0	1.9	2.0	2.0	1.9	2.0	2.0	1.9	2.0	2.0	1.9	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.4	6.0	6.0	6.4	6.0	6.0	6.4	6.0	6.0	6.4	6.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0	2.0	3.0	5.5	2.0	2.0	5.5	2.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Walk Time (s)					7.0							
Flash Don't Walk (s)					14.0							
Pedestrian Calls (#/hr)					0							
Act Effct Green (s)	12.2	25.9	59.4	10.5	24.2	45.6	27.0	57.8	68.7	21.0	51.8	70.4
Actuated g/C Ratio	0.09	0.19	0.42	0.08	0.17	0.33	0.19	0.41	0.49	0.15	0.37	0.50
v/c Ratio	0.67	0.71	0.45	0.64	0.77	0.22	0.78	0.67	0.20	0.58	0.51	0.24
Control Delay (s/veh)	73.1	59.3	18.2	74.4	64.1	4.3	48.4	13.2	0.7	53.6	26.8	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	73.1	59.3	18.2	74.4	64.1	4.3	48.4	13.2	0.7	53.6	26.8	8.0
LOS	E	E	B	E	E	A	D	B	A	D	C	A
Approach Delay (s/veh)		47.9			56.3			21.0			26.9	

Lanes, Volumes, Timings
 3: Veterans Pkwy & Fort Jesse Rd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			E			C			C		
90th %ile Green (s)	15.0	33.1	33.5	12.0	30.1	21.0	33.5	49.1	12.0	21.0	36.6	15.0
90th %ile Term Code	Max	Hold	Gap	Max	Gap	Max	Gap	Coord	Max	Max	Coord	Max
70th %ile Green (s)	14.0	28.9	29.4	12.0	26.9	21.0	29.4	53.3	12.0	21.0	44.9	14.0
70th %ile Term Code	Gap	Hold	Gap	Max	Gap	Hold	Gap	Coord	Max	Hold	Coord	Gap
50th %ile Green (s)	12.5	25.4	27.1	11.0	23.9	21.0	27.1	57.8	11.0	21.0	51.7	12.5
50th %ile Term Code	Gap	Hold	Gap	Gap	Gap	Hold	Gap	Coord	Gap	Hold	Coord	Gap
30th %ile Green (s)	11.0	23.0	24.7	9.6	21.6	21.0	24.7	61.6	9.6	21.0	57.9	11.0
30th %ile Term Code	Gap	Hold	Gap	Gap	Gap	Hold	Gap	Coord	Gap	Hold	Coord	Gap
10th %ile Green (s)	8.7	19.3	20.4	7.7	18.3	21.0	20.4	67.2	7.7	21.0	67.8	8.7
10th %ile Term Code	Gap	Hold	Gap	Gap	Gap	Hold	Gap	Coord	Gap	Hold	Coord	Gap
Queue Length 50th (ft)	89	209	136	74	215	2	176	110	0	134	281	37
Queue Length 95th (ft)	129	252	180	112	264	31	213	334	m13	m199	366	m80
Internal Link Dist (ft)	1347			680			1299			2443		
Turn Bay Length (ft)	110	225		175	200		245	255		345	575	
Base Capacity (vph)	355	862	830	290	787	557	850	2099	895	262	1899	907
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.53	0.41	0.56	0.59	0.22	0.62	0.67	0.20	0.58	0.51	0.23

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 113 (81%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.78
 Intersection Signal Delay (s/veh): 32.8 Intersection LOS: C
 Intersection Capacity Utilization 72.4% ICU Level of Service C
 Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Veterans Pkwy & Fort Jesse Rd



Lanes, Volumes, Timings
 4: Veterans Pkwy & Parkway Plaza

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	100	90	335	75	245	55	1705	380	150	1230	35
Future Volume (vph)	75	100	90	335	75	245	55	1705	380	150	1230	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	11	11	11	11	12	12	12	12	12	12	12
Storage Length (ft)	90		130	0		0	515		545	505		530
Storage Lanes	1		1	2		0	1		1	1		1
Taper Length (ft)	105			25			235			205		
Satd. Flow (prot)	1668	1766	1561	3385	1607	0	1736	5136	1615	1805	5136	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1668	1766	1533	3368	1607	0	1736	5136	1595	1805	5136	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			177		108				180			130
Link Speed (mph)		30			30			45				45
Link Distance (ft)		397			383			1295				1379
Travel Time (s)		9.0			8.7			19.6				20.9
Confl. Peds. (#/hr)			4	4					1	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	4%	0%	0%	5%	0%	4%	1%	0%	0%	1%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	79	105	95	353	337	0	58	1795	400	158	1295	37
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2	3	1	6	7
Permitted Phases			4						2			6
Detector Phase	7	4	5	3	8		5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0		5.0	15.0	5.0	5.0	15.0	5.0
Minimum Split (s)	11.8	20.0	11.4	11.8	20.0		11.4	21.4	11.8	12.0	21.4	11.8
Total Split (s)	18.0	20.0	19.0	36.0	38.0		19.0	65.0	36.0	19.0	65.0	18.0
Total Split (%)	12.9%	14.3%	13.6%	25.7%	27.1%		13.6%	46.4%	25.7%	13.6%	46.4%	12.9%
Maximum Green (s)	11.2	14.0	12.6	29.2	31.5		12.6	59.3	29.2	12.6	59.3	11.2
Yellow Time (s)	4.3	4.0	4.0	4.3	4.0		4.0	4.5	4.3	4.0	4.5	4.3
All-Red Time (s)	2.5	2.0	2.4	2.5	2.5		2.4	1.2	2.5	2.4	1.2	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.0	6.4	6.8	6.5		6.4	5.7	6.8	6.4	5.7	6.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lag	Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0		2.0	5.5	2.0	2.0	5.5	2.0
Recall Mode	None	None	None	None	None		None	C-Max	None	None	C-Max	None
Act Effct Green (s)	9.8	16.7	28.9	19.1	25.5		12.6	64.0	82.1	15.3	66.7	75.4
Actuated g/C Ratio	0.07	0.12	0.21	0.14	0.18		0.09	0.46	0.59	0.11	0.48	0.54
v/c Ratio	0.68	0.50	0.21	0.76	0.88		0.37	0.76	0.40	0.81	0.53	0.04
Control Delay (s/veh)	91.0	65.2	1.0	69.1	61.6		44.7	16.0	1.2	77.5	29.0	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	91.0	65.2	1.0	69.1	61.6		44.7	16.0	1.2	77.5	29.0	2.6
LOS	F	E	A	E	E		D	B	A	E	C	A
Approach Delay (s/veh)		50.7			65.4			14.1			33.5	
Approach LOS		D			E			B			C	
90th %ile Green (s)	11.2	18.4	12.6	24.8	31.5		12.6	59.3	24.8	12.6	59.3	11.2

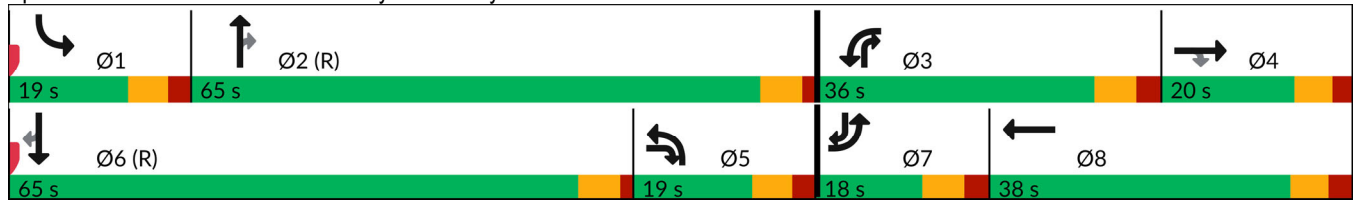
Lanes, Volumes, Timings
 4: Veterans Pkwy & Parkway Plaza

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
90th %ile Term Code	Max	Max	Max	Gap	Max		Max	Coord	Gap	Max	Coord	Max
70th %ile Green (s)	11.2	21.9	12.6	21.0	31.2		12.6	59.3	21.0	12.9	59.6	11.2
70th %ile Term Code	Max	Hold	Hold	Gap	Gap		Hold	Coord	Gap	Max	Coord	Max
50th %ile Green (s)	11.1	19.4	12.6	19.0	26.8		12.6	59.3	19.0	17.4	64.1	11.1
50th %ile Term Code	Gap	Hold	Hold	Gap	Gap		Hold	Coord	Gap	Max	Coord	Gap
30th %ile Green (s)	9.1	15.0	12.6	16.9	22.3		12.6	65.2	16.9	18.0	70.6	9.1
30th %ile Term Code	Gap	Hold	Hold	Gap	Gap		Hold	Coord	Gap	Gap	Coord	Gap
10th %ile Green (s)	6.3	8.7	12.6	14.0	15.9		12.6	77.0	14.0	15.4	79.8	6.3
10th %ile Term Code	Gap	Hold	Hold	Gap	Gap		Hold	Coord	Gap	Gap	Coord	Gap
Queue Length 50th (ft)	71	89	0	162	210		53	520	14	150	380	0
Queue Length 95th (ft)	#135	152	0	207	321		m65	558	m15	#306	446	m14
Internal Link Dist (ft)		317			303			1215			1299	
Turn Bay Length (ft)	90		130				515		545	505		530
Base Capacity (vph)	133	223	458	706	445		156	2348	1115	196	2446	918
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.47	0.21	0.50	0.76		0.37	0.76	0.36	0.81	0.53	0.04



































Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 61 (44%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay (s/veh): 29.9 Intersection LOS: C
 Intersection Capacity Utilization 85.6% ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Veterans Pkwy & Parkway Plaza



Lanes, Volumes, Timings
5: Veterans Pkwy & E College Ave

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 		 	  		 	  	
Traffic Volume (vph)	255	680	385	260	470	125	395	1760	280	145	1300	210
Future Volume (vph)	255	680	385	260	470	125	395	1760	280	145	1300	210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	12	12	12	12	12	12
Storage Length (ft)	140		315	110		135	415		455	415		505
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (ft)	190			230			230			225		
Satd. Flow (prot)	3385	3490	1561	3385	3490	1561	3502	5136	1599	3502	5136	1615
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3385	3490	1561	3385	3490	1561	3502	5136	1599	3502	5136	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			136			136			82			82
Link Speed (mph)		30			35			45				45
Link Distance (ft)		1820			778			1447				1295
Travel Time (s)		41.4			15.2			21.9				19.6
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	1%	0%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	271	723	410	277	500	133	420	1872	298	154	1383	223
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	9.0	5.0	5.0	9.0	5.0	5.0	10.0	5.0	5.0	10.0	5.0
Minimum Split (s)	13.0	16.0	13.0	13.0	16.0	13.0	13.0	40.0	13.0	13.0	40.0	13.0
Total Split (s)	26.0	38.0	34.0	22.0	34.0	18.0	34.0	62.0	22.0	18.0	46.0	26.0
Total Split (%)	18.6%	27.1%	24.3%	15.7%	24.3%	12.9%	24.3%	44.3%	15.7%	12.9%	32.9%	18.6%
Maximum Green (s)	18.7	31.5	27.0	14.7	27.5	11.0	27.0	55.9	14.7	11.0	39.9	18.7
Yellow Time (s)	4.8	4.0	4.5	4.8	4.0	4.5	4.5	4.5	4.8	4.5	4.5	4.8
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	1.6	2.5	2.5	1.6	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.3	6.5	7.0	7.3	6.5	7.0	7.0	6.1	7.3	7.0	6.1	7.3
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	15.3	31.2	58.9	14.0	29.9	40.4	21.2	56.9	69.7	11.0	46.7	68.1
Actuated g/C Ratio	0.11	0.22	0.42	0.10	0.21	0.29	0.15	0.41	0.50	0.08	0.33	0.49
v/c Ratio	0.73	0.93	0.56	0.82	0.67	0.24	0.79	0.90	0.36	0.56	0.81	0.27
Control Delay (s/veh)	72.3	72.5	22.3	81.0	55.9	4.3	82.0	26.9	4.8	48.5	28.0	8.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	72.3	72.5	22.3	81.0	55.9	4.3	82.0	26.9	4.8	48.5	28.0	8.6
LOS	E	E	C	F	E	A	F	C	A	D	C	A
Approach Delay (s/veh)		57.8			56.0			33.3			27.3	
Approach LOS		E			E			C			C	
90th %ile Green (s)	18.7	31.5	27.0	14.7	27.5	11.0	27.0	55.9	14.7	11.0	39.9	18.7
90th %ile Term Code	Max	Max	Max	Max	Max	Max	Max	Coord	Max	Max	Coord	Max

Lanes, Volumes, Timings
 5: Veterans Pkwy & E College Ave

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
70th %ile Green (s)	17.3	31.5	23.3	14.7	28.9	11.0	23.3	55.9	14.7	11.0	43.6	17.3
70th %ile Term Code	Gap	Max	Gap	Max	Hold	Max	Gap	Coord	Max	Max	Coord	Gap
50th %ile Green (s)	15.5	31.5	21.1	14.7	30.7	11.0	21.1	55.9	14.7	11.0	45.8	15.5
50th %ile Term Code	Gap	Max	Gap	Max	Hold	Hold	Gap	Coord	Max	Hold	Coord	Gap
30th %ile Green (s)	13.7	31.9	18.9	14.3	32.5	11.0	18.9	55.9	14.3	11.0	48.0	13.7
30th %ile Term Code	Gap	Max	Gap	Gap	Hold	Hold	Gap	Coord	Gap	Hold	Coord	Gap
10th %ile Green (s)	11.2	29.5	15.8	11.7	30.0	11.0	15.8	60.9	11.7	11.0	56.1	11.2
10th %ile Term Code	Gap	Gap	Gap	Gap	Hold	Hold	Gap	Coord	Gap	Hold	Coord	Gap
Queue Length 50th (ft)	125	341	186	128	220	0	168	252	54	71	447	26
Queue Length 95th (ft)	170	#456	268	#191	292	32	211	490	108	111	#554	71
Internal Link Dist (ft)		1740			698			1367			1215	
Turn Bay Length (ft)	140		315	110		135	415		455	415		505
Base Capacity (vph)	452	787	794	355	745	547	675	2087	844	275	1712	864
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.92	0.52	0.78	0.67	0.24	0.62	0.90	0.35	0.56	0.81	0.26

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 53 (38%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

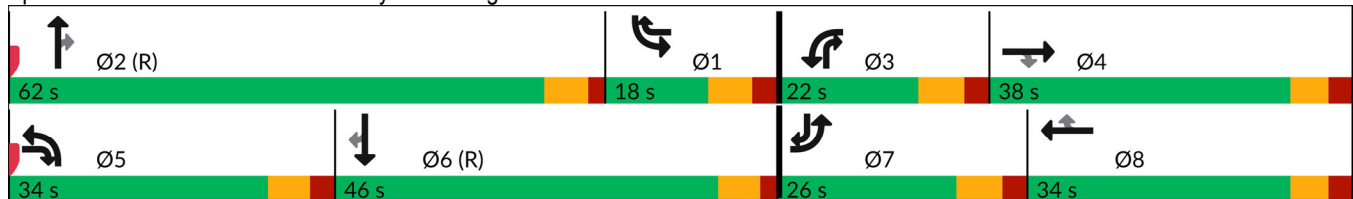
Intersection Signal Delay (s/veh): 40.0 Intersection LOS: D

Intersection Capacity Utilization 86.8% ICU Level of Service E

Analysis Period (min) 15

























95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 5: Veterans Pkwy & E College Ave



Lanes, Volumes, Timings

6: Veterans Pkwy & Von Maur Dr/Jumer Dr

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	90	290	200	100	55	320	2290	245	40	1805	100
Future Volume (vph)	90	90	290	200	100	55	320	2290	245	40	1805	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	12	12	12	12	12	12
Storage Length (ft)	90		120	145		225	555		695	530		590
Storage Lanes	1		1	1		1	1		1	2		1
Taper Length (ft)	80			115			220			250		
Satd. Flow (prot)	1745	3421	1546	3385	1766	1531	1805	5136	1615	3502	5136	1615
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1745	3421	1546	3385	1766	1531	1805	5136	1615	3502	5136	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			136			136			250			102
Link Speed (mph)		30			30			45				45
Link Distance (ft)		275			1066			1370				1447
Travel Time (s)		6.3			24.2			20.8				21.9
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	2%	1%	0%	4%	2%	0%	1%	0%	0%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	92	92	296	204	102	56	327	2337	250	41	1842	102
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0	5.0	5.0	10.0	5.0	5.0	10.0	5.0
Minimum Split (s)	13.0	24.0	13.0	13.0	15.0	18.0	13.0	40.0	13.0	18.0	40.0	13.0
Total Split (s)	18.0	16.0	36.0	19.0	17.0	15.0	36.0	90.0	19.0	15.0	69.0	18.0
Total Split (%)	12.9%	11.4%	25.7%	13.6%	12.1%	10.7%	25.7%	64.3%	13.6%	10.7%	49.3%	12.9%
Maximum Green (s)	11.0	9.0	29.0	12.0	10.0	8.0	29.0	83.5	12.0	8.0	62.5	11.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.5	5.0	5.0	4.5	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	6.5	7.0	7.0	6.5	7.0
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Walk Time (s)		5.0				5.0		7.0		5.0		
Flash Don't Walk (s)		11.0				5.0		14.0		5.0		
Pedestrian Calls (#/hr)		0				0		0		0		
Act Effct Green (s)	10.4	8.7	43.5	11.6	9.9	23.0	27.8	87.2	99.7	7.5	64.4	74.3
Actuated g/C Ratio	0.07	0.06	0.31	0.08	0.07	0.16	0.20	0.62	0.71	0.05	0.46	0.53
v/c Ratio	0.71	0.43	0.52	0.73	0.82	0.15	0.92	0.73	0.20	0.22	0.78	0.11
Control Delay (s/veh)	91.3	69.8	23.8	78.1	106.9	0.9	63.9	18.0	0.6	54.3	24.3	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	91.3	69.8	23.8	78.1	106.9	0.9	63.9	18.0	0.6	54.3	24.3	1.6
LOS	F	E	C	E	F	A	E	B	A	D	C	A
Approach Delay (s/veh)		45.5			74.3			21.7			23.8	

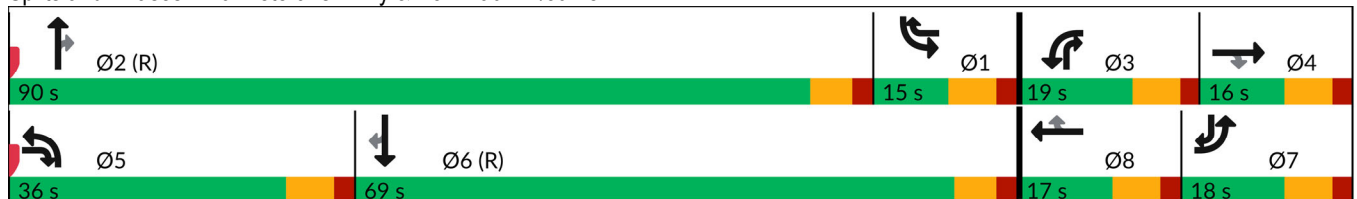
Lanes, Volumes, Timings
 6: Veterans Pkwy & Von Maur Dr/Jumer Dr

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			E			C			C		
90th %ile Green (s)	11.0	9.0	29.0	12.0	10.0	8.0	29.0	83.5	12.0	8.0	62.5	11.0
90th %ile Term Code	Max	Max	Max	Max	Max	Max	Max	Coord	Max	Max	Coord	Max
70th %ile Green (s)	11.0	9.0	29.0	12.0	10.0	8.0	29.0	83.5	12.0	8.0	62.5	11.0
70th %ile Term Code	Max	Max	Max	Max	Max	Hold	Max	Coord	Max	Hold	Coord	Max
50th %ile Green (s)	11.0	9.0	29.0	12.0	10.0	8.0	29.0	83.5	12.0	8.0	62.5	11.0
50th %ile Term Code	Max	Max	Max	Max	Max	Hold	Max	Coord	Max	Hold	Coord	Max
30th %ile Green (s)	11.0	9.0	28.6	12.0	10.0	8.0	28.6	83.5	12.0	8.0	62.9	11.0
30th %ile Term Code	Max	Hold	Gap	Max	Max	Hold	Gap	Coord	Max	Hold	Coord	Max
10th %ile Green (s)	8.1	7.5	23.3	10.0	9.4	0.0	23.3	102.0	10.0	0.0	71.7	8.1
10th %ile Term Code	Gap	Hold	Gap	Gap	Gap	Skip	Gap	Coord	Gap	Skip	Coord	Gap
Queue Length 50th (ft)	83	43	115	94	93	0	260	805	6	15	245	0
Queue Length 95th (ft)	#163	74	209	#139	#196	0	m289	m822	m3	m22	364	m12
Internal Link Dist (ft)	195			986			1290			1367		
Turn Bay Length (ft)	90	120		145	225		555	695		530	590	
Base Capacity (vph)	137	219	586	290	126	384	373	3199	1226	200	2363	911
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.67	0.42	0.51	0.70	0.81	0.15	0.88	0.73	0.20	0.21	0.78	0.11

Intersection Summary


































Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 38 (27%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 105
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.92
 Intersection Signal Delay (s/veh): 27.7 Intersection LOS: C
 Intersection Capacity Utilization 82.1% ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Veterans Pkwy & Von Maur Dr/Jumer Dr



Lanes, Volumes, Timings

7: Veterans Pkwy & E Vernon Ave/General Electric Rd

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 		 	  		 	  	
Traffic Volume (vph)	345	460	490	200	355	230	360	2280	200	170	1820	305
Future Volume (vph)	345	460	490	200	355	230	360	2280	200	170	1820	305
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	12	12	12	12	12	12
Storage Length (ft)	235		140	180		160	530		590	400		685
Storage Lanes	1		1	2		1	2		1	2		1
Taper Length (ft)	80			150			230			210		
Satd. Flow (prot)	3385	3490	1546	3385	3490	1531	3502	5136	1599	3467	5136	1615
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3385	3490	1546	3385	3490	1531	3502	5136	1599	3467	5136	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			140			140			140			140
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		379			486			2185			1370	
Travel Time (s)		8.6			11.0			33.1			20.8	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	1%	0%	0%	2%	0%	1%	1%	1%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	359	479	510	208	370	240	375	2375	208	177	1896	318
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0	5.0	5.0	10.0	5.0	5.0	10.0	5.0
Minimum Split (s)	12.0	20.0	12.0	12.0	20.0	12.0	12.0	21.4	12.0	12.0	21.4	12.0
Total Split (s)	27.0	36.0	28.0	18.0	27.0	18.0	28.0	68.0	18.0	18.0	58.0	27.0
Total Split (%)	19.3%	25.7%	20.0%	12.9%	19.3%	12.9%	20.0%	48.6%	12.9%	12.9%	41.4%	19.3%
Maximum Green (s)	20.0	29.0	21.0	11.0	20.0	11.0	21.0	61.0	11.0	11.0	51.0	20.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lead	Lead	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	2.0	2.5	1.0	2.0	2.0	2.5	4.5	1.0	2.0	4.5	1.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	17.5	25.1	46.1	10.5	18.1	28.4	21.0	66.1	83.5	10.3	55.4	79.9
Actuated g/C Ratio	0.13	0.18	0.33	0.08	0.13	0.20	0.15	0.47	0.60	0.07	0.40	0.57
v/c Ratio	0.85	0.77	0.85	0.83	0.82	0.57	0.71	0.98	0.21	0.69	0.93	0.32
Control Delay (s/veh)	78.4	62.9	35.4	89.0	74.7	17.0	46.4	31.4	0.2	66.7	37.7	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	78.4	62.9	35.4	89.0	74.7	17.0	46.4	31.4	0.2	66.7	37.7	1.9
LOS	E	E	D	F	E	B	D	C	A	E	D	A
Approach Delay (s/veh)		56.6			61.4			31.1			35.1	
Approach LOS		E			E			C			D	
90th %ile Green (s)	20.0	29.0	21.0	11.0	20.0	11.0	21.0	61.0	11.0	11.0	51.0	20.0
90th %ile Term Code	Max	Max	Max	Max	Max	Max	Max	Coord	Max	Max	Coord	Max

Lanes, Volumes, Timings

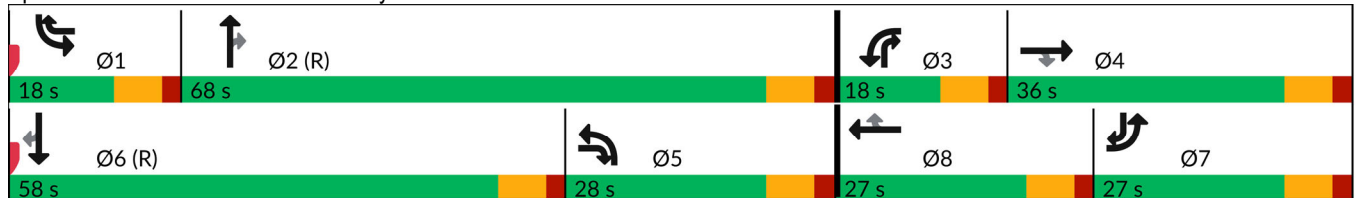
7: Veterans Pkwy & E Vernon Ave/General Electric Rd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
70th %ile Green (s)	20.0	29.0	21.0	11.0	20.0	11.0	21.0	61.0	11.0	11.0	51.0	20.0
70th %ile Term Code	Max	Hold	Max	Max	Max	Max	Max	Coord	Max	Max	Coord	Max
50th %ile Green (s)	18.2	26.3	21.0	11.0	19.1	11.5	21.0	63.2	11.0	11.5	53.7	18.2
50th %ile Term Code	Gap	Hold	Max	Max	Gap	Gap	Max	Coord	Max	Gap	Coord	Gap
30th %ile Green (s)	16.2	22.5	21.0	10.8	17.1	10.1	21.0	68.6	10.8	10.1	57.7	16.2
30th %ile Term Code	Gap	Hold	Max	Gap	Gap	Gap	Max	Coord	Gap	Gap	Coord	Gap
10th %ile Green (s)	13.2	18.9	21.0	8.5	14.2	8.1	21.0	76.5	8.5	8.1	63.6	13.2
10th %ile Term Code	Gap	Hold	Hold	Gap	Gap	Gap	Hold	Coord	Gap	Gap	Coord	Gap
Queue Length 50th (ft)	166	218	228	97	173	53	154	~826	0	74	671	20
Queue Length 95th (ft)	220	275	327	#157	230	110	m173	#946	m0	m103	#780	m32
Internal Link Dist (ft)		299			406			2105			1290	
Turn Bay Length (ft)	235		140	180		160	530		590	400		685
Base Capacity (vph)	483	722	603	265	498	430	525	2423	1016	274	2032	963
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.66	0.85	0.78	0.74	0.56	0.71	0.98	0.20	0.65	0.93	0.33



















Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 132 (94%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay (s/veh): 40.3 Intersection LOS: D
 Intersection Capacity Utilization 91.9% ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Veterans Pkwy & E Vernon Ave/General Electric Rd



Lanes, Volumes, Timings
 8: Veterans Pkwy & Clearwater Ave

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	 		  		 	  
Traffic Volume (vph)	270	450	2390	360	410	2100
Future Volume (vph)	270	450	2390	360	410	2100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	13	12	12
Storage Length (ft)	0	335		560	380	
Storage Lanes	2	1		1	2	
Taper Length (ft)	25				240	
Satd. Flow (prot)	3351	1546	5136	1669	3502	5136
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3321	1546	5136	1646	3501	5136
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		1		35		
Link Speed (mph)	30		45			45
Link Distance (ft)	1078		2570			2185
Travel Time (s)	24.5		38.9			33.1
Confl. Peds. (#/hr)	5			1	1	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	1%	1%	0%	0%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	287	479	2543	383	436	2234
Turn Type	Prot	pt+ov	NA	pm+ov	Prot	NA
Protected Phases	3	1 3	2	3	1	6
Permitted Phases		3		2		
Detector Phase	3	1 3	2	3	1	6
Switch Phase						
Minimum Initial (s)	8.0		10.0	8.0	6.0	10.0
Minimum Split (s)	20.0		51.0	20.0	23.0	21.4
Total Split (s)	30.0		79.0	30.0	31.0	110.0
Total Split (%)	21.4%		56.4%	21.4%	22.1%	78.6%
Maximum Green (s)	23.0		72.0	23.0	24.0	103.0
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0		7.0	7.0	7.0	7.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	4.0		3.0	4.0	2.0	3.0
Recall Mode	None		C-Max	None	None	C-Max
Walk Time (s)			7.0		5.0	
Flash Don't Walk (s)			17.0		5.0	
Pedestrian Calls (#/hr)			0		0	
Act Effct Green (s)	21.4	52.4	73.6	95.0	24.0	104.6
Actuated g/C Ratio	0.15	0.37	0.53	0.68	0.17	0.75
v/c Ratio	0.56	0.83	0.94	0.34	0.73	0.58
Control Delay (s/veh)	59.2	52.9	24.6	3.1	44.2	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	59.2	52.9	24.6	3.1	44.2	3.7
LOS	E	D	C	A	D	A

Lanes, Volumes, Timings
 8: Veterans Pkwy & Clearwater Ave

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Approach Delay (s/veh)	55.2		21.8			10.3
Approach LOS	E		C			B
90th %ile Green (s)	23.0		72.0	23.0	24.0	103.0
90th %ile Term Code	Max		Coord	Max	Max	Coord
70th %ile Green (s)	23.0		72.0	23.0	24.0	103.0
70th %ile Term Code	Max		Coord	Max	Max	Coord
50th %ile Green (s)	23.0		72.0	23.0	24.0	103.0
50th %ile Term Code	Max		Coord	Max	Max	Coord
30th %ile Green (s)	22.3		72.7	22.3	24.0	103.7
30th %ile Term Code	Gap		Coord	Gap	Max	Coord
10th %ile Green (s)	15.6		79.4	15.6	24.0	110.4
10th %ile Term Code	Gap		Coord	Gap	Max	Coord
Queue Length 50th (ft)	124	385	849	34	210	133
Queue Length 95th (ft)	172	538	#817	59	m235	126
Internal Link Dist (ft)	998		2490			2105
Turn Bay Length (ft)		335		560	380	
Base Capacity (vph)	550	596	2700	1149	600	3838
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.80	0.94	0.33	0.73	0.58

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 123 (88%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay (s/veh): 21.0 Intersection LOS: C

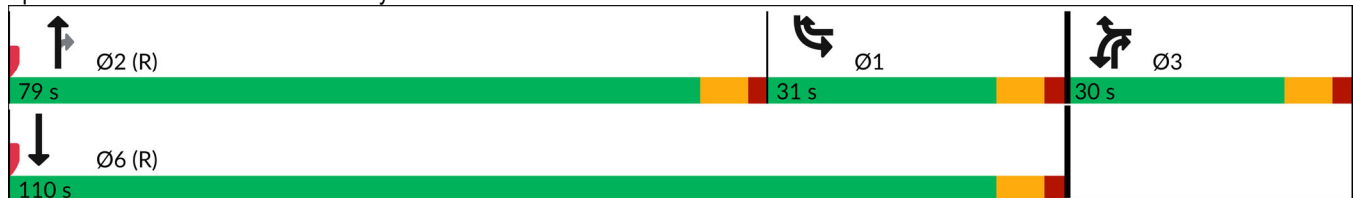
Intersection Capacity Utilization 85.7% ICU Level of Service E

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: Veterans Pkwy & Clearwater Ave



Lanes, Volumes, Timings

9: Veterans Pkwy & Empire Street North Junction



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔↔			↑↑↑	↑↑↑↑	↗
Traffic Volume (vph)	330	0	0	2420	2025	345
Future Volume (vph)	330	0	0	2420	2025	345
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	12	12	12	12	13
Storage Length (ft)	0	0	0			480
Storage Lanes	2	0	0			1
Taper Length (ft)	25		25			
Satd. Flow (prot)	3618	0	0	5136	7619	1669
Flt Permitted	0.950					
Satd. Flow (perm)	3618	0	0	5136	7619	1669
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						
Link Speed (mph)	35			45	45	
Link Distance (ft)	383			530	2570	
Travel Time (s)	7.5			8.0	38.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	1%	1%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	344	0	0	2521	2109	359
Turn Type	Prot			NA	NA	pm+ov
Protected Phases	3			2	6	3
Permitted Phases						6
Detector Phase	3			2	6	3
Switch Phase						
Minimum Initial (s)	8.0			15.0	15.0	8.0
Minimum Split (s)	20.0			21.2	21.2	20.0
Total Split (s)	32.0			108.0	108.0	32.0
Total Split (%)	22.9%			77.1%	77.1%	22.9%
Maximum Green (s)	25.7			101.8	101.8	25.7
Yellow Time (s)	4.0			4.0	4.0	4.0
All-Red Time (s)	2.3			2.2	2.2	2.3
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	6.3			6.2	6.2	6.3
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Recall Mode	None			C-Max	C-Max	None
Act Effct Green (s)	18.9			108.6	108.6	140.0
Actuated g/C Ratio	0.14			0.78	0.78	1.00
v/c Ratio	0.70			0.63	0.36	0.22
Control Delay (s/veh)	73.6			3.0	4.5	0.2
Queue Delay	0.0			0.1	0.0	0.0
Total Delay (s/veh)	73.6			3.1	4.5	0.2
LOS	E			A	A	A
Approach Delay (s/veh)	73.6			3.1	3.8	
Approach LOS	E			A	A	
90th %ile Green (s)	24.0			103.5	103.5	24.0
90th %ile Term Code	Gap			Coord	Coord	Gap

Lanes, Volumes, Timings
 9: Veterans Pkwy & Empire Street North Junction



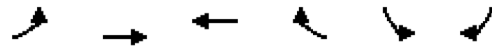
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
70th %ile Green (s)	21.3			106.2	106.2	21.3
70th %ile Term Code	Gap			Coord	Coord	Gap
50th %ile Green (s)	18.6			108.9	108.9	18.6
50th %ile Term Code	Gap			Coord	Coord	Gap
30th %ile Green (s)	16.7			110.8	110.8	16.7
30th %ile Term Code	Gap			Coord	Coord	Gap
10th %ile Green (s)	13.9			113.6	113.6	13.9
10th %ile Term Code	Gap			Coord	Coord	Gap
Queue Length 50th (ft)	172			104	87	0
Queue Length 95th (ft)	225			121	100	0
Internal Link Dist (ft)	303			450	2490	
Turn Bay Length (ft)						480
Base Capacity (vph)	664			3984	5910	1653
Starvation Cap Reductn	0			213	0	0
Spillback Cap Reductn	0			0	23	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.52			0.67	0.36	0.22

Intersection Summary
 Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 63 (45%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.70
 Intersection Signal Delay (s/veh): 8.0 Intersection LOS: A
 Intersection Capacity Utilization 66.6% ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 9: Veterans Pkwy & Empire Street North Junction



Lanes, Volumes, Timings
 10: E Empire St & Veterans Parkway West Junction



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔↔	↑↑↑	↑↑			↔↔
Traffic Volume (vph)	330	1025	855	0	0	345
Future Volume (vph)	330	1025	855	0	0	345
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	245			0	0	0
Storage Lanes	2			0	0	2
Taper Length (ft)	165				25	
Satd. Flow (prot)	3502	5136	3574	0	0	2842
Flt Permitted	0.950					
Satd. Flow (perm)	3502	5136	3574	0	0	2842
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)						191
Link Speed (mph)		35	35		35	
Link Distance (ft)		2754	530		355	
Travel Time (s)		53.6	10.3		6.9	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	1%	1%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	355	1102	919	0	0	371
Turn Type	Prot	NA	NA			Over
Protected Phases	7	2 7	2			7
Permitted Phases						
Detector Phase	7	2 7	2			7
Switch Phase						
Minimum Initial (s)	8.0		15.0			8.0
Minimum Split (s)	21.0		22.4			21.0
Total Split (s)	60.0		80.0			60.0
Total Split (%)	42.9%		57.1%			42.9%
Maximum Green (s)	53.7		73.8			53.7
Yellow Time (s)	4.0		4.0			4.0
All-Red Time (s)	2.3		2.2			2.3
Lost Time Adjust (s)	0.0		0.0			0.0
Total Lost Time (s)	6.3		6.2			6.3
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0		2.0			2.0
Recall Mode	None		C-Max			None
Act Effct Green (s)	26.9	140.0	100.6			26.9
Actuated g/C Ratio	0.19	1.00	0.72			0.19
v/c Ratio	0.53	0.21	0.36			0.53
Control Delay (s/veh)	52.7	0.1	0.6			14.0
Queue Delay	0.0	0.0	0.1			0.0
Total Delay (s/veh)	52.7	0.1	0.7			14.0
LOS	D	A	A			B
Approach Delay (s/veh)		12.9	0.7		14.0	
Approach LOS		B	A		B	
90th %ile Green (s)	36.6		90.9			36.6
90th %ile Term Code	Gap		Coord			Gap
70th %ile Green (s)	30.5		97.0			30.5

Lanes, Volumes, Timings
 10: E Empire St & Veterans Parkway West Junction



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
70th %ile Term Code	Gap		Coord			Gap
50th %ile Green (s)	26.9		100.6			26.9
50th %ile Term Code	Gap		Coord			Gap
30th %ile Green (s)	23.1		104.4			23.1
30th %ile Term Code	Gap		Coord			Gap
10th %ile Green (s)	17.6		109.9			17.6
10th %ile Term Code	Gap		Coord			Gap
Queue Length 50th (ft)	151	0	2			45
Queue Length 95th (ft)	185	0	3			65
Internal Link Dist (ft)		2674	450		275	
Turn Bay Length (ft)	245					
Base Capacity (vph)	1343	5136	2567			1207
Starvation Cap Reductn	0	0	597			0
Spillback Cap Reductn	0	115	0			0
Storage Cap Reductn	0	0	0			0
Reduced v/c Ratio	0.26	0.22	0.47			0.31













Intersection Summary

Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Offset:	10 (7%), Referenced to phase 2:EBWB, Start of 1st Green
Natural Cycle:	45
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.53
Intersection Signal Delay (s/veh):	9.0
Intersection LOS:	A
Intersection Capacity Utilization:	46.1%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 10: E Empire St & Veterans Parkway West Junction



Lanes, Volumes, Timings
 11: Veterans Pkwy & E Empire St

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗	↘↘	↑↑↑		↘↘	↑↑↑	
Traffic Volume (vph)	0	805	285	0	615	400	240	2020	0	330	1695	0
Future Volume (vph)	0	805	285	0	615	400	240	2020	0	330	1695	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	3574	1583	0	3574	1583	3467	5136	0	3502	5136	0
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	3574	1583	0	3574	1583	3467	5136	0	3502	5136	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			86			86						
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		530			509			475			530	
Travel Time (s)		10.3			9.9			7.2			8.0	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	1%	2%	0%	1%	2%	1%	1%	0%	0%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	847	300	0	647	421	253	2126	0	347	1784	0
Turn Type		NA	pm+ov		NA	pm+ov	Prot	NA		Prot	NA	
Protected Phases		4	5		8	1	5	2		1	6	
Permitted Phases			4			8						
Detector Phase		4	5		8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)		15.0	5.0		15.0	5.0	5.0	15.0		5.0	15.0	
Minimum Split (s)		22.0	19.0		22.0	12.0	19.0	22.0		12.0	22.0	
Total Split (s)		44.0	22.0		44.0	20.0	22.0	76.0		20.0	74.0	
Total Split (%)		31.4%	15.7%		31.4%	14.3%	15.7%	54.3%		14.3%	52.9%	
Maximum Green (s)		37.0	15.0		37.0	13.0	15.0	69.0		13.0	67.0	
Yellow Time (s)		5.0	5.0		5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)		2.0	2.0		2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	
Lead/Lag			Lag			Lead	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode		None	None		None	None	None	C-Max		None	C-Max	
Act Effct Green (s)		36.1	58.1		36.1	57.0	15.0	69.0		13.9	67.9	
Actuated g/C Ratio		0.26	0.42		0.26	0.41	0.11	0.49		0.10	0.49	
v/c Ratio		0.92	0.42		0.70	0.61	0.68	0.84		1.00	0.72	
Control Delay (s/veh)		65.8	22.0		51.6	29.8	48.7	13.4		120.7	14.4	
Queue Delay		0.4	0.0		0.0	0.9	0.0	0.0		0.0	0.1	
Total Delay (s/veh)		66.2	22.0		51.6	30.6	48.7	13.4		120.7	14.5	
LOS		E	C		D	C	D	B		F	B	
Approach Delay (s/veh)		54.7			43.3			17.1			31.8	
Approach LOS		D			D			B			C	
90th %ile Green (s)		37.0	15.0		37.0	13.0	15.0	69.0		13.0	67.0	
90th %ile Term Code		Max	Max		Max	Max	Max	Coord		Max	Coord	
70th %ile Green (s)		37.0	15.0		37.0	13.0	15.0	69.0		13.0	67.0	
70th %ile Term Code		Max	Max		Hold	Max	Max	Coord		Max	Coord	
50th %ile Green (s)		37.0	15.0		37.0	13.0	15.0	69.0		13.0	67.0	
50th %ile Term Code		Max	Max		Hold	Max	Max	Coord		Max	Coord	

Lanes, Volumes, Timings
 11: Veterans Pkwy & E Empire St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
30th %ile Green (s)		37.0	15.0		37.0	13.0	15.0	69.0		13.0	67.0	
30th %ile Term Code		Max	Max		Hold	Max	Max	Coord		Max	Coord	
10th %ile Green (s)		32.7	15.0		32.7	17.3	15.0	69.0		17.3	71.3	
10th %ile Term Code		Gap	Hold		Hold	Max	Hold	Coord		Max	Coord	
Queue Length 50th (ft)		393	133		280	239	123	367		~174	288	
Queue Length 95th (ft)		#505	214		350	355	156	314		#270	112	
Internal Link Dist (ft)		450			429			395			450	
Turn Bay Length (ft)												
Base Capacity (vph)		944	707		944	695	371	2531		346	2489	
Starvation Cap Reductn		9	0		0	93	0	0		0	99	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.91	0.42		0.69	0.70	0.68	0.84		1.00	0.75	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 62 (44%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.00

Intersection Signal Delay (s/veh): 32.3 Intersection LOS: C

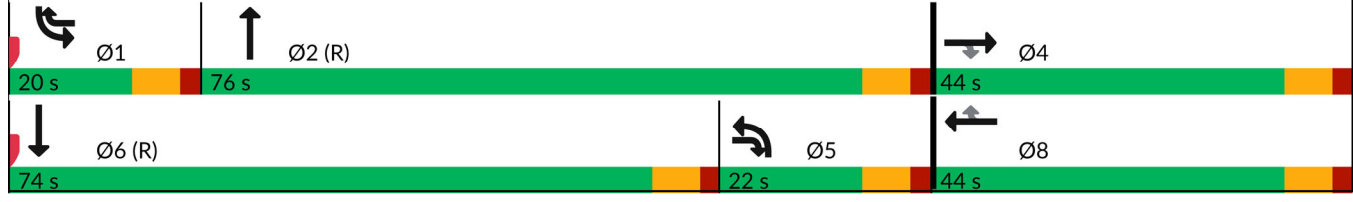
Intersection Capacity Utilization 88.2% ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 11: Veterans Pkwy & E Empire St

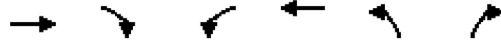


Lanes, Volumes, Timings

12: Veterans Parkway East Junction & E Empire St

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘↙	↑↑↑		↗↖
Traffic Volume (vph)	1135	0	280	1015	0	370
Future Volume (vph)	1135	0	280	1015	0	370
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	245		0	0
Storage Lanes		0	2		0	2
Taper Length (ft)			125		25	
Satd. Flow (prot)	3574	0	3467	5136	0	2814
Flt Permitted			0.950			
Satd. Flow (perm)	3574	0	3467	5136	0	2814
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						98
Link Speed (mph)	35			35	35	
Link Distance (ft)	509			2577	334	
Travel Time (s)	9.9			50.2	6.5	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	0%	1%	1%	0%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1170	0	289	1046	0	381
Turn Type	NA		Prot	NA		Over
Protected Phases	2		4	2 4		4
Permitted Phases						
Detector Phase	2		4	2 4		4
Switch Phase						
Minimum Initial (s)	8.0		4.0			4.0
Minimum Split (s)	21.0		20.0			20.0
Total Split (s)	80.0		60.0			60.0
Total Split (%)	57.1%		42.9%			42.9%
Maximum Green (s)	73.7		56.0			56.0
Yellow Time (s)	4.0		3.5			3.5
All-Red Time (s)	2.3		0.5			0.5
Lost Time Adjust (s)	0.0		0.0			0.0
Total Lost Time (s)	6.3		4.0			4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0			3.0
Recall Mode	C-Max		None			None
Walk Time (s)			5.0			5.0
Flash Don't Walk (s)			11.0			11.0
Pedestrian Calls (#/hr)			0			0
Act Effct Green (s)	96.5		33.2	140.0		33.2
Actuated g/C Ratio	0.69		0.24	1.00		0.24
v/c Ratio	0.48		0.35	0.20		0.51
Control Delay (s/veh)	5.1		43.9	0.1		33.7
Queue Delay	0.1		0.0	0.0		0.0
Total Delay (s/veh)	5.3		43.9	0.1		33.7
LOS	A		D	A		C
Approach Delay (s/veh)	5.3			9.6	33.7	
Approach LOS	A			A	C	

Lanes, Volumes, Timings
 12: Veterans Parkway East Junction & E Empire St



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
90th %ile Green (s)	80.4		49.3			49.3
90th %ile Term Code	Coord		Gap			Gap
70th %ile Green (s)	91.2		38.5			38.5
70th %ile Term Code	Coord		Gap			Gap
50th %ile Green (s)	97.1		32.6			32.6
50th %ile Term Code	Coord		Gap			Gap
30th %ile Green (s)	103.2		26.5			26.5
30th %ile Term Code	Coord		Gap			Gap
10th %ile Green (s)	110.6		19.1			19.1
10th %ile Term Code	Coord		Gap			Gap
Queue Length 50th (ft)	58		114	0		81
Queue Length 95th (ft)	m73		132	0		88
Internal Link Dist (ft)	429			2497	254	
Turn Bay Length (ft)			245			
Base Capacity (vph)	2463		1386	5136		1184
Starvation Cap Reductn	392		0	0		0
Spillback Cap Reductn	0		0	0		0
Storage Cap Reductn	0		0	0		0
Reduced v/c Ratio	0.56		0.21	0.20		0.32











Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 7 (5%), Referenced to phase 2:EBWB, Start of 1st Green
 Natural Cycle: 45
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.51
 Intersection Signal Delay (s/veh): 11.0 Intersection LOS: B
 Intersection Capacity Utilization 52.9% ICU Level of Service A
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 12: Veterans Parkway East Junction & E Empire St



Lanes, Volumes, Timings
 13: Veterans Pkwy & Empire Street South Junction

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	280	0	2260	370	0	1980
Future Volume (vph)	280	0	2260	370	0	1980
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		410	0	
Storage Lanes	2	0		1	0	
Taper Length (ft)	25				25	
Satd. Flow (prot)	3467	0	7619	1599	0	5136
Flt Permitted	0.950					
Satd. Flow (perm)	3467	0	7619	1599	0	5136
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)						
Link Speed (mph)	35		45			45
Link Distance (ft)	378		1025			475
Travel Time (s)	7.4		15.5			7.2
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	1%	0%	1%	1%	0%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	292	0	2354	385	0	2063
Turn Type	Prot		NA	pm+ov		NA
Protected Phases	3		2	3		6
Permitted Phases				2		
Detector Phase	3		2	3		6
Switch Phase						
Minimum Initial (s)	6.0		15.0	6.0		15.0
Minimum Split (s)	15.0		23.5	15.0		21.4
Total Split (s)	30.0		110.0	30.0		110.0
Total Split (%)	21.4%		78.6%	21.4%		78.6%
Maximum Green (s)	23.0		104.1	23.0		104.1
Yellow Time (s)	5.0		4.5	5.0		4.5
All-Red Time (s)	2.0		1.4	2.0		1.4
Lost Time Adjust (s)	0.0		0.0	0.0		0.0
Total Lost Time (s)	7.0		5.9	7.0		5.9
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0		2.0	2.0		2.0
Recall Mode	None		C-Max	None		C-Max
Act Effct Green (s)	16.1		111.0	140.0		111.0
Actuated g/C Ratio	0.12		0.79	1.00		0.79
v/c Ratio	0.73		0.39	0.24		0.51
Control Delay (s/veh)	79.0		1.5	0.2		0.9
Queue Delay	0.0		0.0	0.0		0.2
Total Delay (s/veh)	79.0		1.5	0.2		1.1
LOS	E		A	A		A
Approach Delay (s/veh)	79.0		1.3			1.1
Approach LOS	E		A			A
90th %ile Green (s)	20.5		106.6	20.5		106.6
90th %ile Term Code	Gap		Coord	Gap		Coord
70th %ile Green (s)	17.9		109.2	17.9		109.2

Lanes, Volumes, Timings
 13: Veterans Pkwy & Empire Street South Junction



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
70th %ile Term Code	Gap		Coord	Gap		Coord
50th %ile Green (s)	16.1		111.0	16.1		111.0
50th %ile Term Code	Gap		Coord	Gap		Coord
30th %ile Green (s)	14.3		112.8	14.3		112.8
30th %ile Term Code	Gap		Coord	Gap		Coord
10th %ile Green (s)	11.7		115.4	11.7		115.4
10th %ile Term Code	Gap		Coord	Gap		Coord
Queue Length 50th (ft)	146		51	0		18
Queue Length 95th (ft)	196		50	m0		25
Internal Link Dist (ft)	298		945			395
Turn Bay Length (ft)				410		
Base Capacity (vph)	569		6040	1584		4072
Starvation Cap Reductn	0		0	0		867
Spillback Cap Reductn	0		175	0		0
Storage Cap Reductn	0		0	0		0
Reduced v/c Ratio	0.51		0.40	0.24		0.64

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 61 (44%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 45
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.73
 Intersection Signal Delay (s/veh): 5.7 Intersection LOS: A
 Intersection Capacity Utilization 57.0% ICU Level of Service B
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 13: Veterans Pkwy & Empire Street South Junction



Lanes, Volumes, Timings
 14: Veterans Pkwy & Eastland Dr

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	240	125	125	140	85	260	90	2130	165	225	1925	110
Future Volume (vph)	240	125	125	140	85	260	90	2130	165	225	1925	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	12	12	12	12	12	12	12	12	12
Storage Length (ft)	350		105	145		305	535		535	365		555
Storage Lanes	1		1	1		1	1		1	2		1
Taper Length (ft)	215			125			225			230		
Satd. Flow (prot)	1711	3455	1546	1787	3610	1599	1805	5136	1599	3467	5136	1538
Flt Permitted	0.388			0.670			0.950			0.950		
Satd. Flow (perm)	699	3455	1521	1258	3610	1599	1805	5136	1599	3467	5136	1517
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			137			137			172			115
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		1352			1635			1478			1025	
Travel Time (s)		30.7			37.2			22.4			15.5	
Confl. Peds. (#/hr)			1	1			1					1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	1%	1%	1%	0%	1%	0%	1%	1%	1%	1%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	250	130	130	146	89	271	94	2219	172	234	2005	115
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases	4		4	8		8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0	5.0	5.0	15.0	5.0	5.0	15.0	5.0
Minimum Split (s)	13.0	30.0	18.0	13.0	30.0	18.0	18.0	40.0	13.0	18.0	40.0	13.0
Total Split (s)	26.0	28.0	31.0	20.0	22.0	19.0	31.0	73.0	20.0	19.0	61.0	26.0
Total Split (%)	18.6%	20.0%	22.1%	14.3%	15.7%	13.6%	22.1%	52.1%	14.3%	13.6%	43.6%	18.6%
Maximum Green (s)	19.0	21.0	24.0	13.0	15.0	12.0	24.0	66.4	13.0	12.0	54.4	19.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.6	5.0	5.0	4.6	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	6.6	7.0	7.0	6.6	7.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	1.5	2.0	3.0	1.5	2.0	3.0	3.0	3.0	1.5	3.0	3.0	1.5
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Walk Time (s)		7.0	5.0		7.0	5.0	5.0	7.0		5.0	7.0	
Flash Don't Walk (s)		15.0	5.0		15.0	5.0	5.0	17.0		5.0	14.0	
Pedestrian Calls (#/hr)		0	0		0	0	0	0		0	0	
Act Effct Green (s)	32.7	14.7	27.3	19.9	8.2	20.2	12.6	74.0	85.3	12.0	73.4	91.2
Actuated g/C Ratio	0.23	0.11	0.20	0.14	0.06	0.14	0.09	0.53	0.61	0.09	0.52	0.65
v/c Ratio	0.85	0.36	0.32	0.65	0.42	0.78	0.58	0.82	0.17	0.79	0.74	0.11
Control Delay (s/veh)	73.1	61.1	7.3	59.4	69.6	34.1	66.0	17.7	1.5	65.3	14.0	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	73.1	61.1	7.3	59.4	69.6	34.1	66.0	17.7	1.5	65.3	14.0	0.7
LOS	E	E	A	E	E	C	E	B	A	E	B	A

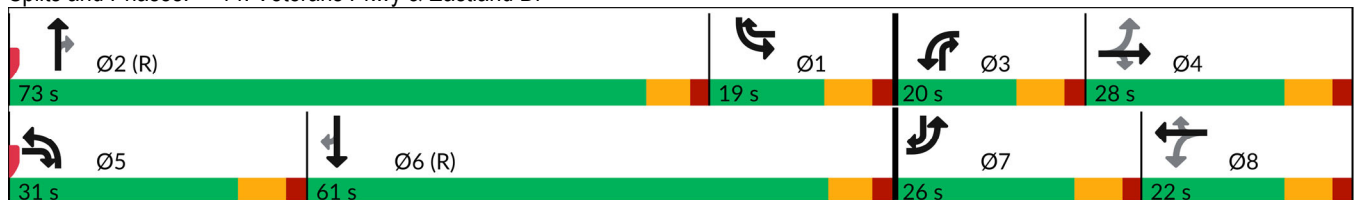
Lanes, Volumes, Timings
 14: Veterans Pkwy & Eastland Dr

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay (s/veh)	53.3			47.6			18.4			18.5		
Approach LOS	D			D			B			B		
90th %ile Green (s)	19.0	16.2	17.4	13.0	10.2	12.0	17.4	71.2	13.0	12.0	65.8	19.0
90th %ile Term Code	Max	Hold	Gap	Max	Gap	Max	Gap	Coord	Max	Max	Coord	Max
70th %ile Green (s)	19.0	14.8	14.6	13.0	8.8	12.0	14.6	72.6	13.0	12.0	70.0	19.0
70th %ile Term Code	Max	Hold	Gap	Max	Gap	Max	Gap	Coord	Max	Max	Coord	Max
50th %ile Green (s)	19.0	13.9	12.6	13.0	7.9	12.0	12.6	73.5	13.0	12.0	72.9	19.0
50th %ile Term Code	Max	Hold	Gap	Max	Gap	Max	Gap	Coord	Max	Max	Coord	Max
30th %ile Green (s)	19.0	14.7	10.6	11.3	7.0	12.0	10.6	74.4	11.3	12.0	75.8	19.0
30th %ile Term Code	Max	Hold	Gap	Gap	Min	Max	Gap	Coord	Gap	Max	Coord	Max
10th %ile Green (s)	15.0	13.7	7.8	8.3	7.0	12.0	7.8	78.4	8.3	12.0	82.6	15.0
10th %ile Term Code	Gap	Hold	Gap	Gap	Min	Hold	Gap	Coord	Gap	Hold	Coord	Gap
Queue Length 50th (ft)	204	59	0	111	42	84	74	646	14	111	214	2
Queue Length 95th (ft)	#328	92	45	172	71	156	m77	m717	m20	#174	624	6
Internal Link Dist (ft)	1272			1555			1398			945		
Turn Bay Length (ft)	350		105	145		305	535		535	365		555
Base Capacity (vph)	301	518	523	239	386	347	309	2715	1054	297	2693	1039
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.25	0.25	0.61	0.23	0.78	0.30	0.82	0.16	0.79	0.74	0.11































Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 66 (47%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 115
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.85
 Intersection Signal Delay (s/veh): 24.0 Intersection LOS: C
 Intersection Capacity Utilization 89.7% ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 14: Veterans Pkwy & Eastland Dr



Lanes, Volumes, Timings
 15: Veterans Pkwy & E Washington St

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 			  			 	
Traffic Volume (vph)	410	350	230	185	230	240	100	1735	175	190	1785	215
Future Volume (vph)	410	350	230	185	230	240	100	1735	175	190	1785	215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	12	11	11	12	12	13	12	12	12
Storage Length (ft)	245		310	160		315	495		490	435		615
Storage Lanes	2		1	2		1	1		1	1		1
Taper Length (ft)	85			155			225			235		
Satd. Flow (prot)	3351	3455	1546	3502	3490	1546	1787	5136	1669	1787	5136	1615
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3351	3455	1526	3502	3490	1522	1787	5136	1669	1787	5136	1593
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			140			140			99			181
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		494			1269			1707			1478	
Travel Time (s)		11.2			28.8			25.9			22.4	
Confl. Peds. (#/hr)							1					1
Confl. Bikes (#/hr)			1			4						1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	1%	1%	0%	0%	1%	1%	1%	0%	1%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	436	372	245	197	245	255	106	1846	186	202	1899	229
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	8.0	5.0	5.0	8.0	5.0	5.0	10.0	5.0	5.0	10.0	5.0
Minimum Split (s)	12.0	26.0	13.0	12.0	21.0	13.0	13.0	40.0	12.0	13.0	40.0	12.0
Total Split (s)	30.0	38.0	18.0	24.0	32.0	20.0	18.0	58.0	24.0	20.0	60.0	30.0
Total Split (%)	21.4%	27.1%	12.9%	17.1%	22.9%	14.3%	12.9%	41.4%	17.1%	14.3%	42.9%	21.4%
Maximum Green (s)	23.5	31.4	10.5	17.5	25.4	12.5	10.5	51.0	17.5	12.5	53.0	23.5
Yellow Time (s)	4.0	4.1	5.0	4.0	4.1	5.0	5.0	4.5	4.0	5.0	4.5	4.0
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.6	7.5	6.5	6.6	7.5	7.5	7.0	6.5	7.5	7.0	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		12.0			7.0			20.0			20.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	21.4	24.3	33.9	12.2	15.1	39.0	10.5	51.1	70.3	24.8	65.4	87.3
Actuated g/C Ratio	0.15	0.17	0.24	0.09	0.11	0.28	0.08	0.37	0.50	0.18	0.47	0.62
v/c Ratio	0.85	0.62	0.51	0.65	0.65	0.48	0.79	0.99	0.21	0.64	0.79	0.22
Control Delay (s/veh)	74.1	58.2	15.9	71.5	67.9	19.6	78.7	40.8	2.1	43.5	25.9	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	74.1	58.2	15.9	71.5	67.9	19.6	78.7	40.8	2.1	43.5	25.9	5.4

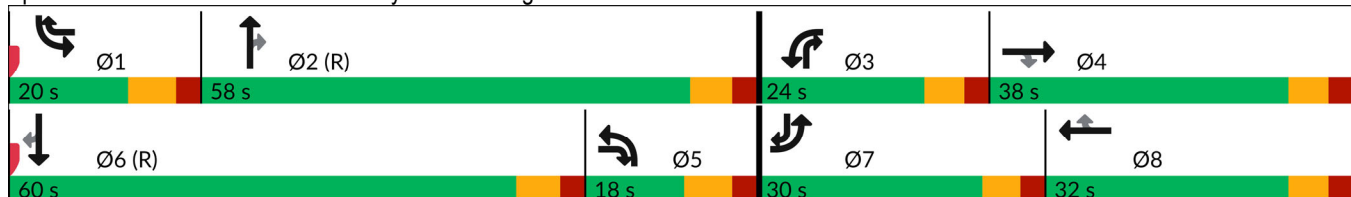
Lanes, Volumes, Timings
 15: Veterans Pkwy & E Washington St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	E	E	B	E	E	B	E	D	A	D	C	A
Approach Delay (s/veh)		54.9			51.3			39.3			25.4	
Approach LOS		D			D			D			C	
90th %ile Green (s)	23.5	26.9	10.5	15.8	19.2	18.7	10.5	51.0	15.8	18.7	59.2	23.5
90th %ile Term Code	Max	Hold	Max	Gap	Gap	Max	Max	Coord	Gap	Max	Coord	Max
70th %ile Green (s)	23.5	26.6	10.5	13.7	16.8	21.1	10.5	51.0	13.7	21.1	61.6	23.5
70th %ile Term Code	Max	Hold	Max	Gap	Gap	Max	Max	Coord	Gap	Max	Coord	Max
50th %ile Green (s)	22.5	25.4	10.5	12.2	15.1	23.8	10.5	51.0	12.2	23.8	64.3	22.5
50th %ile Term Code	Gap	Hold	Max	Gap	Gap	Max	Max	Coord	Gap	Max	Coord	Gap
30th %ile Green (s)	20.3	23.0	10.5	10.8	13.5	27.1	10.5	51.5	10.8	27.1	68.1	20.3
30th %ile Term Code	Gap	Hold	Max	Gap	Gap	Gap	Max	Coord	Gap	Gap	Coord	Gap
10th %ile Green (s)	17.0	19.5	10.5	8.6	11.1	33.3	10.5	51.0	8.6	33.3	73.8	17.0
10th %ile Term Code	Gap	Hold	Hold	Gap	Gap	Max	Hold	Coord	Gap	Max	Coord	Gap
Queue Length 50th (ft)	200	165	57	91	114	78	96	509	5	153	624	67
Queue Length 95th (ft)	259	218	112	130	156	160	#198	#705	9	m#284	692	m90
Internal Link Dist (ft)		414			1189			1627			1398	
Turn Bay Length (ft)	245		310	160		315	495		490	435		615
Base Capacity (vph)	562	774	476	437	633	529	134	1874	946	316	2399	1086
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.48	0.51	0.45	0.39	0.48	0.79	0.99	0.20	0.64	0.79	0.21




















Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 1 (1%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 95
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.99
 Intersection Signal Delay (s/veh): 38.1 Intersection LOS: D
 Intersection Capacity Utilization 85.4% ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: Veterans Pkwy & E Washington St



Lanes, Volumes, Timings
 16: Veterans Pkwy & E Jackson St

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	 	 	 	  	  	
Traffic Volume (vph)	55	40	2	1955	2175	25
Future Volume (vph)	55	40	2	1955	2175	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	12	12	12
Storage Length (ft)	0	0	130			570
Storage Lanes	2	2	2			1
Taper Length (ft)	25		185			
Satd. Flow (prot)	3385	2748	3502	5136	5136	1615
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3379	2748	3502	5136	5136	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		12				26
Link Speed (mph)	25			45	45	
Link Distance (ft)	493			666	1707	
Travel Time (s)	13.4			10.1	25.9	
Confl. Peds. (#/hr)	1					
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	1%	1%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	58	42	2	2058	2289	26
Turn Type	Prot	pt+ov	Prot	NA	NA	pm+ov
Protected Phases	3	3 5	5	2	6	3
Permitted Phases						6
Detector Phase	3	3 5	5	2	6	3
Switch Phase						
Minimum Initial (s)	5.0		5.0	10.0	10.0	5.0
Minimum Split (s)	20.0		21.0	20.0	52.5	20.0
Total Split (s)	30.0		16.0	110.0	94.0	30.0
Total Split (%)	21.4%		11.4%	78.6%	67.1%	21.4%
Maximum Green (s)	24.0		9.8	103.5	87.5	24.0
Yellow Time (s)	4.0		4.0	4.3	4.3	4.0
All-Red Time (s)	2.0		2.2	2.2	2.2	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0		6.2	6.5	6.5	6.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None	C-Max	C-Max	None
Walk Time (s)			7.0		7.0	
Flash Don't Walk (s)			7.0		14.0	
Pedestrian Calls (#/hr)			0		0	
Act Effct Green (s)	7.8	17.3	5.6	123.4	113.9	125.7
Actuated g/C Ratio	0.06	0.12	0.04	0.88	0.81	0.90
v/c Ratio	0.31	0.12	0.01	0.45	0.55	0.02
Control Delay (s/veh)	67.3	40.6	86.0	1.9	2.7	0.0
Queue Delay	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay (s/veh)	67.3	40.6	86.0	2.1	2.7	0.0
LOS	E	D	F	A	A	A

Lanes, Volumes, Timings
 16: Veterans Pkwy & E Jackson St



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach Delay (s/veh)	56.1			2.2	2.6	
Approach LOS	E			A	A	
90th %ile Green (s)	9.8		5.9	117.7	105.6	9.8
90th %ile Term Code	Gap		Gap	Coord	Coord	Gap
70th %ile Green (s)	8.6		5.7	118.9	107.0	8.6
70th %ile Term Code	Gap		Gap	Coord	Coord	Gap
50th %ile Green (s)	7.8		5.5	119.7	108.0	7.8
50th %ile Term Code	Gap		Gap	Coord	Coord	Gap
30th %ile Green (s)	7.0		5.5	120.5	108.8	7.0
30th %ile Term Code	Gap		Gap	Coord	Coord	Gap
10th %ile Green (s)	0.0		0.0	133.5	133.5	0.0
10th %ile Term Code	Skip		Skip	Coord	Coord	Skip
Queue Length 50th (ft)	26	13	1	52	89	0
Queue Length 95th (ft)	50	33	m1	65	101	m0
Internal Link Dist (ft)	413			586	1627	
Turn Bay Length (ft)			130			570
Base Capacity (vph)	580	490	245	4525	4178	1595
Starvation Cap Reductn	0	0	0	1341	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.09	0.01	0.65	0.55	0.02

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 136 (97%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 95
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.55
 Intersection Signal Delay (s/veh): 3.6 Intersection LOS: A
 Intersection Capacity Utilization 56.6% ICU Level of Service B
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: Veterans Pkwy & E Jackson St



Lanes, Volumes, Timings
 17: Veterans Pkwy & Oakland Ave

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	340	460	160	145	335	235	120	1380	200	345	1455	415
Future Volume (vph)	340	460	160	145	335	235	120	1380	200	345	1455	415
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	410		0	280		240	400		450	175		160
Storage Lanes	1		0	1		1	2		1	2		1
Taper Length (ft)	90			115			275			190		
Satd. Flow (prot)	1805	3444	0	1787	3574	1615	3502	5136	1615	3502	5136	1599
Flt Permitted	0.238			0.310			0.950			0.950		
Satd. Flow (perm)	452	3444	0	583	3574	1615	3502	5136	1615	3502	5136	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		35				175			133			120
Link Speed (mph)		30			35			45				45
Link Distance (ft)		1460			1350			2739				666
Travel Time (s)		33.2			26.3			41.5				10.1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	1%	0%	1%	1%	0%	0%	1%	0%	0%	1%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	358	652	0	153	353	247	126	1453	211	363	1532	437
Turn Type	pm+pt	NA		pm+pt	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases	4			8		8			2			6
Detector Phase	7	4		3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	8.0		5.0	8.0	5.0	5.0	12.0	5.0	5.0	12.0	5.0
Minimum Split (s)	12.0	20.0		12.0	20.0	13.0	13.0	40.0	12.0	13.0	40.0	12.0
Total Split (s)	38.0	47.0		19.0	28.0	26.0	22.0	48.0	19.0	26.0	52.0	38.0
Total Split (%)	27.1%	33.6%		13.6%	20.0%	18.6%	15.7%	34.3%	13.6%	18.6%	37.1%	27.1%
Maximum Green (s)	32.0	40.3		13.0	21.3	18.6	14.6	42.0	13.0	18.6	46.0	32.0
Yellow Time (s)	4.0	4.2		4.0	4.2	4.9	4.9	4.3	4.0	4.9	4.3	4.0
All-Red Time (s)	2.0	2.5		2.0	2.5	2.5	2.5	1.7	2.0	2.5	1.7	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.7		6.0	6.7	7.4	7.4	6.0	6.0	7.4	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	6.0	2.0	2.0	6.0	2.0
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		6.0			6.0			18.0			18.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	50.9	32.4		30.4	17.8	35.7	9.4	51.1	62.9	18.6	60.3	92.7
Actuated g/C Ratio	0.36	0.23		0.22	0.13	0.26	0.07	0.37	0.45	0.13	0.43	0.66
v/c Ratio	0.85	0.79		0.67	0.78	0.46	0.54	0.78	0.26	0.78	0.69	0.40
Control Delay (s/veh)	54.2	54.9		46.8	71.2	9.4	54.5	33.5	6.3	52.5	21.7	1.8
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Total Delay (s/veh)	54.2	54.9		46.8	71.2	9.4	54.5	33.5	6.3	52.5	21.7	2.0
LOS	D	D		D	E	A	D	C	A	D	C	A
Approach Delay (s/veh)		54.7			46.0			31.7			22.8	
Approach LOS		D			D			C			C	

Lanes, Volumes, Timings
 17: Veterans Pkwy & Oakland Ave

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
90th %ile Green (s)	32.0	40.3		13.0	21.3	18.6	12.3	42.0	13.0	18.6	48.3	32.0
90th %ile Term Code	Max	Hold		Max	Max	Max	Gap	Coord	Max	Max	Coord	Max
70th %ile Green (s)	30.1	37.1		13.0	20.0	18.6	10.6	45.2	13.0	18.6	53.2	30.1
70th %ile Term Code	Gap	Hold		Max	Gap	Max	Gap	Coord	Max	Max	Coord	Gap
50th %ile Green (s)	26.7	31.8		13.0	18.1	18.6	9.4	50.5	13.0	18.6	59.7	26.7
50th %ile Term Code	Gap	Hold		Max	Gap	Max	Gap	Coord	Max	Max	Coord	Gap
30th %ile Green (s)	23.8	28.6		11.4	16.2	18.6	8.2	55.3	11.4	18.6	65.7	23.8
30th %ile Term Code	Gap	Hold		Gap	Gap	Hold	Gap	Coord	Gap	Hold	Coord	Gap
10th %ile Green (s)	19.6	24.1		8.9	13.4	18.6	6.5	62.3	8.9	18.6	74.4	19.6
10th %ile Term Code	Gap	Hold		Gap	Gap	Hold	Gap	Coord	Gap	Hold	Coord	Gap
Queue Length 50th (ft)	256	283		96	165	30	52	447	68	144	178	9
Queue Length 95th (ft)	324	328		136	216	63	78	#573	112	#211	403	44
Internal Link Dist (ft)		1380			1270			2659			586	
Turn Bay Length (ft)	410			280		240	400		450	175		160
Base Capacity (vph)	473	1016		243	543	542	365	1873	811	465	2210	1158
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	177
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.64		0.63	0.65	0.46	0.35	0.78	0.26	0.78	0.69	0.45

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

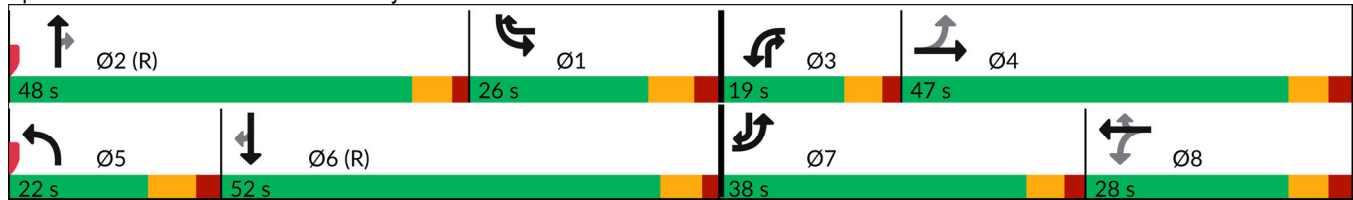
Intersection Signal Delay (s/veh): 33.9 Intersection LOS: C

Intersection Capacity Utilization 86.4% ICU Level of Service E

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 17: Veterans Pkwy & Oakland Ave



Lanes, Volumes, Timings
 18: Veterans Pkwy & E Lincoln St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	130	50	85	130	135	40	1440	125	85	1580	95
Future Volume (vph)	125	130	50	85	130	135	40	1440	125	85	1580	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	12	12	12	12	12	12
Storage Length (ft)	190		135	245		345	415		480	365		420
Storage Lanes	2		1	2		1	1		1	2		1
Taper Length (ft)	165			190			240			230		
Satd. Flow (prot)	3351	3490	1561	3385	3455	1561	1805	5136	1615	3502	5136	1615
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3340	3490	1561	3385	3455	1540	1805	5136	1615	3502	5136	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			139			151			133			101
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		528			572			1313			2739	
Travel Time (s)		12.0			13.0			19.9			41.5	
Confl. Peds. (#/hr)	1						1					
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	0%	0%	0%	1%	0%	0%	1%	0%	0%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	133	138	53	90	138	144	43	1532	133	90	1681	101
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	8.0	5.0	5.0	8.0	5.0	5.0	10.0	5.0	5.0	10.0	5.0
Minimum Split (s)	13.0	30.0	12.0	13.0	16.0	12.0	12.0	40.0	13.0	12.0	40.0	13.0
Total Split (s)	18.0	23.0	18.0	20.0	25.0	16.0	18.0	81.0	20.0	16.0	79.0	18.0
Total Split (%)	12.9%	16.4%	12.9%	14.3%	17.9%	11.4%	12.9%	57.9%	14.3%	11.4%	56.4%	12.9%
Maximum Green (s)	10.6	15.6	11.1	12.6	17.6	10.0	11.1	73.5	12.6	10.0	71.5	10.6
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.4	2.4	1.9	2.4	2.4	1.0	1.9	2.5	2.4	1.0	2.5	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.4	7.4	6.9	7.4	7.4	6.0	6.9	7.5	7.4	6.0	7.5	7.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	3.0	1.0	1.0	3.0	1.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Walk Time (s)		7.0						7.0			7.0	
Flash Don't Walk (s)		15.0						21.0			21.0	
Pedestrian Calls (#/hr)		0						0			0	
Act Effct Green (s)	8.7	10.9	21.3	7.2	9.5	18.0	9.9	86.4	101.2	7.1	85.1	95.4
Actuated g/C Ratio	0.06	0.08	0.15	0.05	0.07	0.13	0.07	0.62	0.72	0.05	0.61	0.68
v/c Ratio	0.64	0.51	0.15	0.51	0.59	0.44	0.34	0.48	0.11	0.51	0.54	0.09
Control Delay (s/veh)	78.0	68.3	0.9	74.8	73.7	10.4	61.5	7.8	0.6	89.3	7.9	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	78.0	68.3	0.9	74.8	73.7	10.4	61.5	7.8	0.6	89.3	7.9	0.3
LOS	E	E	A	E	E	B	E	A	A	F	A	A

Lanes, Volumes, Timings
 18: Veterans Pkwy & E Lincoln St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay (s/veh)	61.3			49.5			8.6			11.4		
Approach LOS	E			D			A			B		
90th %ile Green (s)	10.6	13.0	11.1	9.7	12.1	9.5	11.1	79.5	9.7	9.5	77.0	10.6
90th %ile Term Code	Max	Hold	Hold	Gap	Gap	Gap	Hold	Coord	Gap	Gap	Coord	Max
70th %ile Green (s)	10.3	12.4	11.1	8.2	10.3	8.0	11.1	83.1	8.2	8.0	79.1	10.3
70th %ile Term Code	Gap	Hold	Hold	Gap	Gap	Gap	Hold	Coord	Gap	Gap	Coord	Gap
50th %ile Green (s)	9.0	10.8	11.1	7.2	9.0	7.0	11.1	86.7	7.2	7.0	81.7	9.0
50th %ile Term Code	Gap	Hold	Hold	Gap	Gap	Gap	Hold	Coord	Gap	Gap	Coord	Gap
30th %ile Green (s)	7.7	9.6	11.1	6.1	8.0	6.0	11.1	90.0	6.1	6.0	84.0	7.7
30th %ile Term Code	Gap	Hold	Hold	Gap	Min	Gap	Hold	Coord	Gap	Gap	Coord	Gap
10th %ile Green (s)	5.9	8.9	0.0	5.0	8.0	5.0	0.0	92.8	5.0	5.0	103.8	5.9
10th %ile Term Code	Gap	Hold	Skip	Min	Min	Min	Skip	Coord	Min	Min	Coord	Gap
Queue Length 50th (ft)	61	64	0	41	65	0	38	299	0	36	252	1
Queue Length 95th (ft)	96	100	0	70	100	53	80	380	7	m55	70	m1
Internal Link Dist (ft)	448			492			1233			2659		
Turn Bay Length (ft)	190		135	245		345	415		480	365		420
Base Capacity (vph)	253	388	367	304	434	359	143	3170	1260	250	3122	1153
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.36	0.14	0.30	0.32	0.40	0.30	0.48	0.11	0.36	0.54	0.09

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 67 (48%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.64

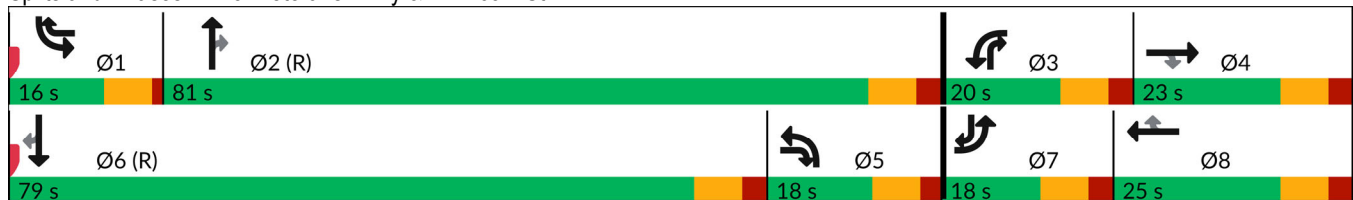
Intersection Signal Delay (s/veh): 17.4 Intersection LOS: B

Intersection Capacity Utilization 65.8% ICU Level of Service C



















Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 18: Veterans Pkwy & E Lincoln St



Lanes, Volumes, Timings
 19: Veterans Pkwy & Ireland Grove Rd

						
Lane Group	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations	 		  		 	  
Traffic Volume (vph)	205	140	1465	200	115	1600
Future Volume (vph)	205	140	1465	200	115	1600
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		585	340	
Storage Lanes	2	1		1	2	
Taper Length (ft)	25				230	
Satd. Flow (prot)	3434	1470	5136	1599	3502	5085
Flt Permitted	0.959				0.950	
Satd. Flow (perm)	3434	1470	5136	1599	3502	5085
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	13	13		195		
Link Speed (mph)	35		45			45
Link Distance (ft)	485		1559			1313
Travel Time (s)	9.4		23.6			19.9
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	0%	1%	1%	0%	2%
Shared Lane Traffic (%)		23%				
Lane Group Flow (vph)	252	115	1559	213	122	1702
Turn Type	Prot	pt+ov	NA	pm+ov	Prot	NA
Protected Phases	4	1 4	2	4	1	6
Permitted Phases				2		
Detector Phase	4	1 4	2	4	1	6
Switch Phase						
Minimum Initial (s)	6.0		10.0	6.0	5.0	10.0
Minimum Split (s)	14.0		40.0	14.0	13.0	40.0
Total Split (s)	46.0		74.0	46.0	20.0	94.0
Total Split (%)	32.9%		52.9%	32.9%	14.3%	67.1%
Maximum Green (s)	38.9		67.3	38.9	13.0	87.3
Yellow Time (s)	5.0		4.5	5.0	5.0	4.5
All-Red Time (s)	2.1		2.2	2.1	2.0	2.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.1		6.7	7.1	7.0	6.7
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		C-Max	None	None	C-Max
Act Effct Green (s)	15.3	35.4	90.9	112.9	13.0	110.9
Actuated g/C Ratio	0.11	0.25	0.65	0.81	0.09	0.79
v/c Ratio	0.65	0.30	0.47	0.16	0.38	0.42
Control Delay (s/veh)	64.3	38.8	13.3	0.8	48.6	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	64.3	38.8	13.3	0.8	48.6	0.9
LOS	E	D	B	A	D	A
Approach Delay (s/veh)	56.3		11.8			4.1
Approach LOS	E		B			A
90th %ile Green (s)	20.3		85.9	20.3	13.0	105.9
90th %ile Term Code	Gap		Coord	Gap	Max	Coord
70th %ile Green (s)	16.9		89.3	16.9	13.0	109.3

Lanes, Volumes, Timings
 19: Veterans Pkwy & Ireland Grove Rd

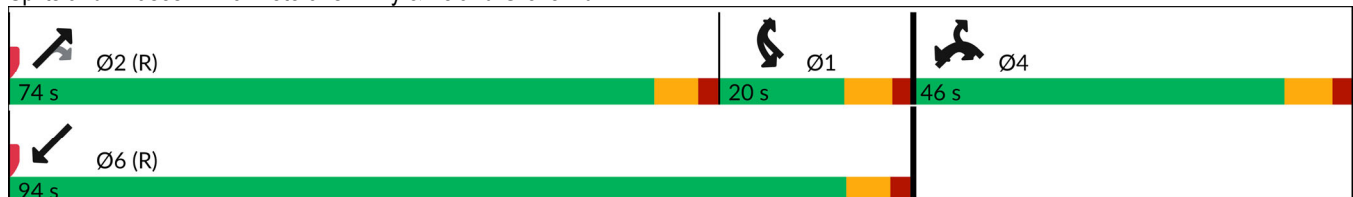


Lane Group	NWL	NWR	NET	NER	SWL	SWT
70th %ile Term Code	Gap		Coord	Gap	Max	Coord
50th %ile Green (s)	15.2		91.0	15.2	13.0	111.0
50th %ile Term Code	Gap		Coord	Gap	Max	Coord
30th %ile Green (s)	13.4		92.8	13.4	13.0	112.8
30th %ile Term Code	Gap		Coord	Gap	Hold	Coord
10th %ile Green (s)	10.9		95.3	10.9	13.0	115.3
10th %ile Term Code	Gap		Coord	Gap	Hold	Coord
Queue Length 50th (ft)	109	82	245	3	59	9
Queue Length 95th (ft)	150	139	310	17	95	11
Internal Link Dist (ft)	405		1479			1233
Turn Bay Length (ft)				585	340	
Base Capacity (vph)	963	627	3333	1327	325	4026
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.18	0.47	0.16	0.38	0.42

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 68 (49%), Referenced to phase 2:NET and 6:SWT, Start of 1st Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.65
 Intersection Signal Delay (s/veh): 12.4 Intersection LOS: B
 Intersection Capacity Utilization 57.1% ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 19: Veterans Pkwy & Ireland Grove Rd



Arterial Level of Service
AM Peak Hour

Arterial Level of Service: NB Veterans Pkwy

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Ireland Grove Rd	19	28.9	52.0	0.3	21
E Lincoln St	18	6.8	26.7	0.2	34
Oakland Ave	17	12.8	53.0	0.5	35
E Jackson St	16	2.9	13.3	0.1	34
E Washington St	15	20.3	45.6	0.3	26
Eastland Dr	14	20.3	42.8	0.3	24
Empire Street South	13	5.7	21.7	0.2	32
E Empire St	11	4.9	11.5	0.1	28
Empire Street North	9	2.2	10.2	0.1	35
Clearwater Ave	8	5.4	43.5	0.5	40
General Electric Rd	7	21.3	54.0	0.4	28
Jumer Dr	6	11.6	32.4	0.3	29
E College Ave	5	20.0	41.5	0.3	24
Parkway Plaza	4	3.9	23.8	0.2	37
Fort Jesse Rd	3	18.5	39.0	0.3	24
Shepard Rd	2	19.3	56.0	0.5	31
Total		204.9	567.0	4.6	29

Arterial Level of Service: SB Veterans Pkwy

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Shepard Rd	2	10.1	59.4	0.6	38
Fort Jesse Rd	3	22.2	59.6	0.5	29
Parkway Plaza	4	7.1	28.1	0.3	34
E College Ave	5	10.9	30.4	0.2	29
Von Maur Dr	6	6.8	28.5	0.3	35
E Vernon Ave	7	17.4	37.6	0.3	25
Clearwater Ave	8	8.3	41.4	0.4	36
Empire Street North	9	6.8	45.5	0.5	38
E Empire St	11	17.5	25.2	0.1	14
Empire Street South	13	4.0	11.2	0.1	29
Eastland Dr	14	6.3	22.1	0.2	32
E Washington St	15	19.1	41.1	0.3	25
E Jackson St	16	6.0	31.6	0.3	37
Oakland Ave	17	12.0	22.1	0.1	21
E Lincoln St	18	7.3	48.7	0.5	38
Ireland Grove Rd	19	2.5	22.3	0.2	40
Total		164.4	554.7	4.9	32

Arterial Level of Service
PM Peak Hour



























Arterial Level of Service: NB Veterans Pkwy

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Ireland Grove Rd	19	17.2	40.1	0.3	27
E Lincoln St	18	6.8	27.0	0.2	33
Oakland Ave	17	35.9	76.2	0.5	24
E Jackson St	16	6.7	17.1	0.1	27
E Washington St	15	51.4	76.6	0.3	15
Eastland Dr	14	19.3	41.6	0.3	24
Empire Street South	13	6.9	22.9	0.2	31
E Empire St	11	13.3	19.9	0.1	16
Empire Street North	9	4.4	12.4	0.1	29
Clearwater Ave	8	38.6	76.8	0.5	23
General Electric Rd	7	124.5	157.0	0.4	10
Jumer Dr	6	15.8	36.4	0.3	26
E College Ave	5	38.2	59.9	0.3	16
Parkway Plaza	4	9.8	29.6	0.2	30
Fort Jesse Rd	3	14.3	34.8	0.3	27
Shepard Rd	2	8.0	45.3	0.5	38
Total		411.0	773.6	4.6	21

Arterial Level of Service: SB Veterans Pkwy

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Shepard Rd	2	17.8	67.2	0.6	34
Fort Jesse Rd	3	31.6	68.6	0.5	25
Parkway Plaza	4	26.6	47.1	0.3	20
E College Ave	5	26.0	45.5	0.2	19
Von Maur Dr	6	37.8	59.2	0.3	17
E Vernon Ave	7	55.4	75.5	0.3	12
Clearwater Ave	8	12.6	45.3	0.4	33
Empire Street North	9	10.2	48.4	0.5	36
E Empire St	11	17.3	25.0	0.1	14
Empire Street South	13	3.5	10.6	0.1	31
Eastland Dr	14	13.6	29.4	0.2	24
E Washington St	15	37.8	59.7	0.3	17
E Jackson St	16	10.3	35.9	0.3	32
Oakland Ave	17	43.1	53.2	0.1	9
E Lincoln St	18	9.3	50.8	0.5	37
Ireland Grove Rd	19	2.8	22.6	0.2	40
Total		355.9	743.9	4.9	24

Lanes, Volumes, Timings
2: Veterans Pkwy & Shepard Rd

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				 				  			 	
Traffic Volume (vph)	5	2	15	360	10	285	30	510	210	220	1160	10
Future Volume (vph)	5	2	15	360	10	285	30	510	210	220	1160	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		180	250		0	250		450	455		260
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	140			135			185			185		
Satd. Flow (prot)	1312	1594	0	3286	1512	0	1745	4775	1501	1646	4853	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1312	1594	0	3286	1512	0	1745	4775	1501	1646	4853	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			294				216			1
Link Speed (mph)		30			40			45				45
Link Distance (ft)		462			1492			2523				3295
Travel Time (s)		10.5			25.4			38.2				49.9
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	33%	0%	0%	3%	0%	4%	0%	5%	4%	6%	3%	30%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	17	0	371	304	0	31	526	216	227	1206	0
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases									2			
Detector Phase	7	4		3	8		5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	15.0	5.0	5.0	15.0	
Minimum Split (s)	12.0	49.0		12.0	46.0		12.0	35.0	12.0	12.0	35.0	
Total Split (s)	12.0	43.0		26.0	57.0		13.0	41.0	26.0	30.0	58.0	
Total Split (%)	8.6%	30.7%		18.6%	40.7%		9.3%	29.3%	18.6%	21.4%	41.4%	
Maximum Green (s)	5.0	36.0		19.0	50.0		6.0	34.0	19.0	23.0	51.0	
Yellow Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5	2.5	2.5	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0		2.0	3.0		2.0	4.5	2.0	2.0	4.5	
Recall Mode	None	None		None	None		None	C-Max	None	None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		35.0			32.0			21.0			21.0	
Pedestrian Calls (#/hr)		5			5			5			5	
Act Effct Green (s)	5.0	12.8		18.2	30.0		5.7	63.8	89.0	22.8	85.8	
Actuated g/C Ratio	0.04	0.09		0.13	0.21		0.04	0.46	0.64	0.16	0.61	
v/c Ratio	0.11	0.11		0.87	0.55		0.44	0.24	0.21	0.85	0.41	
Control Delay (s/veh)	70.6	23.4		80.7	8.3		84.5	26.1	14.0	83.4	18.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	70.6	23.4		80.7	8.3		84.5	26.1	14.0	83.4	18.6	
LOS	E	C		F	A		F	C	B	F	B	
Approach Delay (s/veh)		34.2			48.1			25.1			28.9	
Approach LOS		C			D			C			C	

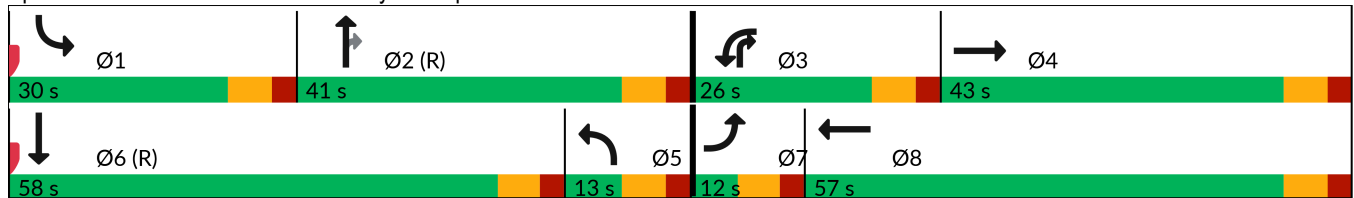
Lanes, Volumes, Timings
2: Veterans Pkwy & Shepard Rd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
90th %ile Green (s)	5.0	36.0		19.0	50.0		6.0	34.0	19.0	23.0	51.0	
90th %ile Term Code	Max	Ped		Max	Hold		Max	Coord	Max	Max	Coord	
70th %ile Green (s)	0.0	7.0		19.0	33.0		6.0	58.2	19.0	27.8	80.0	
70th %ile Term Code	Skip	Min		Max	Hold		Max	Coord	Max	Gap	Coord	
50th %ile Green (s)	0.0	7.0		19.0	33.0		6.0	61.1	19.0	24.9	80.0	
50th %ile Term Code	Skip	Min		Max	Hold		Max	Coord	Max	Gap	Coord	
30th %ile Green (s)	0.0	0.0		18.4	18.4		0.0	79.0	18.4	21.6	107.6	
30th %ile Term Code	Skip	Skip		Gap	Hold		Skip	Coord	Gap	Gap	Coord	
10th %ile Green (s)	0.0	0.0		15.4	15.4		0.0	86.8	15.4	16.8	110.6	
10th %ile Term Code	Skip	Skip		Gap	Hold		Skip	Coord	Gap	Gap	Coord	
Queue Length 50th (ft)	5	2		172	7		30	134	74	200	220	
Queue Length 95th (ft)	20	22		#249	71		m62	210	163	#345	393	
Internal Link Dist (ft)		382			1412			2443			3215	
Turn Bay Length (ft)	160			250			250		450	455		
Base Capacity (vph)	46	421		445	729		74	2176	1040	286	2976	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.11	0.04		0.83	0.42		0.42	0.24	0.21	0.79	0.41	

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 6 (4%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 120
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.87
 Intersection Signal Delay (s/veh): 32.4 Intersection LOS: C
 Intersection Capacity Utilization 62.5% ICU Level of Service B
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Veterans Pkwy & Shepard Rd



Lanes, Volumes, Timings
3: Veterans Pkwy & Fort Jesse Rd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	305	340	115	400	80	260	555	85	110	1240	185
Future Volume (vph)	115	305	340	115	400	80	260	555	85	110	1240	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	110		225	175		200	245		255	345		575
Storage Lanes	2		0	2		0	2		0	1		0
Taper Length (ft)	190			160			250			205		
Satd. Flow (prot)	2996	3182	0	3351	3314	0	3286	4805	0	1694	4810	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	2996	3182	0	3351	3314	0	3286	4805	0	1694	4810	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		196			16			23				22
Link Speed (mph)		35			30			45				45
Link Distance (ft)		2696			760			1379				2523
Travel Time (s)		52.5			17.3			20.9				38.2
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	13%	1%	1%	1%	3%	1%	3%	2%	4%	3%	2%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	120	672	0	120	500	0	271	667	0	115	1485	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	15.0		5.0	15.0	
Minimum Split (s)	12.0	46.0		12.0	46.0		12.0	38.0		12.0	38.0	
Total Split (s)	17.0	44.0		15.0	42.0		23.0	59.0		22.0	58.0	
Total Split (%)	12.1%	31.4%		10.7%	30.0%		16.4%	42.1%		15.7%	41.4%	
Maximum Green (s)	10.0	37.0		8.0	35.0		16.0	52.0		15.0	51.0	
Yellow Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0		2.0	3.0		3.0	5.5		2.0	5.5	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		32.0			32.0			24.0			24.0	
Pedestrian Calls (#/hr)		5			5			5			5	
Act Effct Green (s)	9.1	28.6		7.7	27.3		16.0	62.7		13.0	59.7	
Actuated g/C Ratio	0.07	0.20		0.06	0.20		0.11	0.45		0.09	0.43	
v/c Ratio	0.62	0.83		0.65	0.76		0.72	0.31		0.73	0.72	
Control Delay (s/veh)	77.7	46.6		81.7	58.9		67.9	25.2		80.2	33.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	77.7	46.6		81.7	58.9		67.9	25.2		80.2	33.6	
LOS	E	D		F	E		E	C		F	C	
Approach Delay (s/veh)		51.4			63.3			37.6			37.0	
Approach LOS		D			E			D			D	

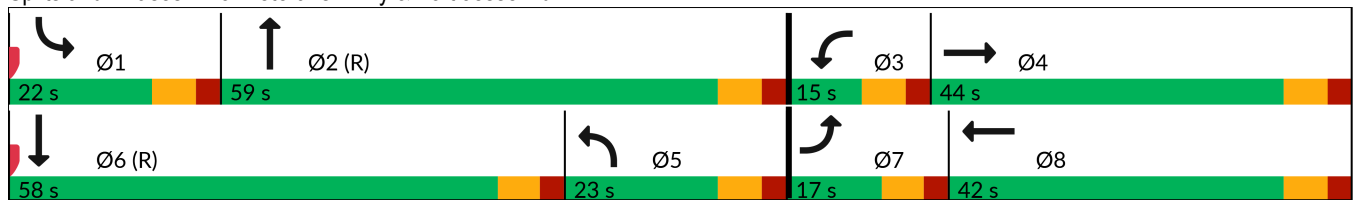
Lanes, Volumes, Timings
 3: Veterans Pkwy & Fort Jesse Rd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
90th %ile Green (s)	10.0	37.0		8.0	35.0		16.0	52.0		15.0	51.0	
90th %ile Term Code	Max	Ped		Max	Ped		Max	Coord		Max	Coord	
70th %ile Green (s)	10.0	32.3		8.0	30.3		16.0	55.4		16.3	55.7	
70th %ile Term Code	Max	Gap		Max	Hold		Max	Coord		Gap	Coord	
50th %ile Green (s)	10.0	28.7		8.0	26.7		16.0	61.4		13.9	59.3	
50th %ile Term Code	Max	Hold		Max	Gap		Max	Coord		Gap	Coord	
30th %ile Green (s)	8.6	25.3		8.0	24.7		16.0	67.2		11.5	62.7	
30th %ile Term Code	Gap	Gap		Max	Hold		Hold	Coord		Gap	Coord	
10th %ile Green (s)	6.7	19.9		6.5	19.7		16.0	77.4		8.2	69.6	
10th %ile Term Code	Gap	Hold		Gap	Gap		Hold	Coord		Gap	Coord	
Queue Length 50th (ft)	55	226		56	223		132	76		105	449	
Queue Length 95th (ft)	90	279		90	267		129	189		m142	543	
Internal Link Dist (ft)		2616			680			1299			2443	
Turn Bay Length (ft)	110			175			245			345		
Base Capacity (vph)	214	985		191	840		375	2164		184	2062	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.56	0.68		0.63	0.60		0.72	0.31		0.63	0.72	




























Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 47 (34%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.83
 Intersection Signal Delay (s/veh): 44.1 Intersection LOS: D
 Intersection Capacity Utilization 82.4% ICU Level of Service E
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

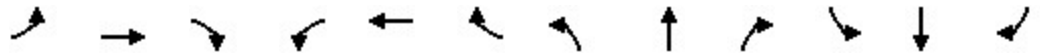
Splits and Phases: 3: Veterans Pkwy & Fort Jesse Rd



Lanes, Volumes, Timings
4: Veterans Pkwy & Parkway Plaza

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				 				  			  	
Traffic Volume (vph)	10	30	25	100	30	50	30	840	120	65	1605	25
Future Volume (vph)	10	30	25	100	30	50	30	840	120	65	1605	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	90		130	0		0	515		545	505		530
Storage Lanes	1		0	2		0	1		1	1		0
Taper Length (ft)	105			25			235			205		
Satd. Flow (prot)	1745	1502	0	3319	1553	0	1678	4868	1561	1694	4891	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1745	1502	0	3306	1553	0	1678	4868	1526	1693	4891	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			53				126			2
Link Speed (mph)		30			30			45				45
Link Distance (ft)		1179			383			1295				1379
Travel Time (s)		26.8			8.7			19.6				20.9
Confl. Peds. (#/hr)			4	4					1	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	24%	0%	2%	19%	0%	4%	3%	0%	3%	2%	22%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	11	58	0	105	85	0	32	884	126	68	1715	0
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases									2			
Detector Phase	7	4		3	8		5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	15.0	5.0	5.0	15.0	
Minimum Split (s)	12.0	49.0		12.0	46.0		12.0	32.0	12.0	12.0	32.0	
Total Split (s)	13.0	49.0		15.0	51.0		12.0	57.0	15.0	19.0	64.0	
Total Split (%)	9.3%	35.0%		10.7%	36.4%		8.6%	40.7%	10.7%	13.6%	45.7%	
Maximum Green (s)	6.0	42.0		8.0	44.0		5.0	50.0	8.0	12.0	57.0	
Yellow Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5	2.5	2.5	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0		2.0	3.0		2.0	5.5	2.0	2.0	5.5	
Recall Mode	None	None		None	None		None	C-Max	None	None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		35.0			32.0			18.0			18.0	
Pedestrian Calls (#/hr)		5			5			5			5	
Act Effct Green (s)	5.5	14.9		7.7	21.7		5.0	85.1	92.9	9.5	89.5	
Actuated g/C Ratio	0.04	0.11		0.06	0.16		0.04	0.61	0.66	0.07	0.64	
v/c Ratio	0.16	0.32		0.57	0.30		0.54	0.30	0.12	0.59	0.55	
Control Delay (s/veh)	70.3	35.5		77.2	22.9		81.4	9.8	1.0	91.6	8.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	70.3	35.5		77.2	22.9		81.4	9.8	1.0	91.6	8.0	
LOS	E	D		E	C		F	A	A	F	A	
Approach Delay (s/veh)		41.1			52.9			10.9			11.1	

Lanes, Volumes, Timings
 4: Veterans Pkwy & Parkway Plaza

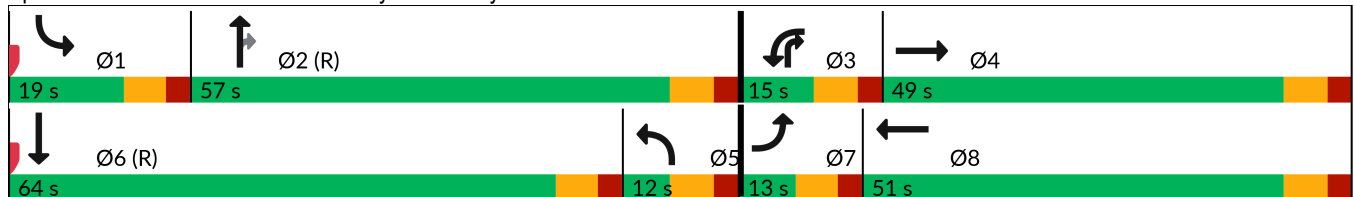


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			D			B			B		
90th %ile Green (s)	6.0	42.0		8.0	44.0		5.0	50.0	8.0	12.0	57.0	
90th %ile Term Code	Max	Ped		Max	Hold		Max	Coord	Max	Max	Coord	
70th %ile Green (s)	6.0	10.3		8.0	12.3		5.0	81.9	8.0	11.8	88.7	
70th %ile Term Code	Max	Gap		Max	Hold		Max	Coord	Max	Gap	Coord	
50th %ile Green (s)	0.0	8.4		8.0	23.4		5.0	85.6	8.0	10.0	90.6	
50th %ile Term Code	Skip	Gap		Max	Hold		Max	Coord	Max	Gap	Coord	
30th %ile Green (s)	0.0	7.0		7.7	21.7		5.0	89.1	7.7	8.2	92.3	
30th %ile Term Code	Skip	Min		Gap	Hold		Max	Coord	Gap	Gap	Coord	
10th %ile Green (s)	0.0	0.0		7.0	7.0		0.0	119.0	7.0	0.0	119.0	
10th %ile Term Code	Skip	Skip		Hold	Min		Skip	Coord	Hold	Skip	Coord	
Queue Length 50th (ft)	10	29		48	25		24	91	2	62	122	
Queue Length 95th (ft)	32	57		81	62		#82	53	2	m77	606	
Internal Link Dist (ft)	1099			303			1215			1299		
Turn Bay Length (ft)	90						515			545 505		
Base Capacity (vph)	74	468		189	524		59	2959	1059	145	3128	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.15	0.12		0.56	0.16		0.54	0.30	0.12	0.47	0.55	





























Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 70 (50%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 115
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.59
 Intersection Signal Delay (s/veh): 14.3 Intersection LOS: B
 Intersection Capacity Utilization 63.9% ICU Level of Service B
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Veterans Pkwy & Parkway Plaza



Lanes, Volumes, Timings
5: Veterans Pkwy & E College Ave

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 		 	  				
Traffic Volume (vph)	95	285	265	125	350	50	230	845	85	65	1565	100
Future Volume (vph)	95	285	265	125	350	50	230	845	85	65	1565	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	140		315	110		135	415		455	415		505
Storage Lanes	2		1	2		0	2		1	2		1
Taper Length (ft)	190			230			230			225		
Satd. Flow (prot)	3255	3355	1531	3286	3356	0	3385	4916	1459	3286	4916	1501
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3255	3355	1531	3286	3356	0	3385	4916	1459	3286	4916	1501
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			140		11				140			140
Link Speed (mph)		30			35			45				45
Link Distance (ft)		2552			778			1447				1295
Travel Time (s)		58.0			15.2			21.9				19.6
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	4%	4%	2%	3%	1%	9%	0%	2%	7%	3%	2%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	101	303	282	133	425	0	245	899	90	69	1665	106
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2	3	1	6	7
Permitted Phases			4						2			6
Detector Phase	7	4	5	3	8		5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	9.0	5.0	5.0	9.0		5.0	10.0	5.0	5.0	10.0	5.0
Minimum Split (s)	12.0	49.0	12.0	12.0	49.0		12.0	41.0	12.0	12.0	41.0	12.0
Total Split (s)	17.0	50.0	19.0	16.0	49.0		19.0	59.0	16.0	15.0	55.0	17.0
Total Split (%)	12.1%	35.7%	13.6%	11.4%	35.0%		13.6%	42.1%	11.4%	10.7%	39.3%	12.1%
Maximum Green (s)	10.0	43.0	12.0	9.0	42.0		12.0	52.0	9.0	8.0	48.0	10.0
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lead	Lag	Lag	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0		2.0	3.0	2.0	2.0	3.0	2.0
Recall Mode	None	None	None	None	None		None	C-Max	None	None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		35.0			35.0			27.0			27.0	
Pedestrian Calls (#/hr)		5			5			5			5	
Act Effct Green (s)	8.4	21.9	35.6	12.0	25.5		13.7	73.1	92.1	7.4	64.4	79.8
Actuated g/C Ratio	0.06	0.16	0.25	0.09	0.18		0.10	0.52	0.66	0.05	0.46	0.57
v/c Ratio	0.52	0.58	0.57	0.47	0.69		0.74	0.35	0.09	0.40	0.74	0.12
Control Delay (s/veh)	72.9	57.9	17.3	66.7	57.1		74.9	25.8	8.3	49.4	16.4	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	72.9	57.9	17.3	66.7	57.1		74.9	25.8	8.3	49.4	16.4	1.1
LOS	E	E	B	E	E		E	C	A	D	B	A
Approach Delay (s/veh)		43.4			59.4			34.3			16.8	
Approach LOS		D			E			C			B	

Lanes, Volumes, Timings
5: Veterans Pkwy & E College Ave

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
90th %ile Green (s)	10.0	42.0	12.0	10.0	42.0		12.0	52.0	10.0	8.0	48.0	10.0
90th %ile Term Code	Max	Ped	Max	Max	Ped		Max	Coord	Max	Max	Coord	Max
70th %ile Green (s)	9.9	20.0	16.7	15.0	25.1		16.7	69.0	15.0	8.0	60.3	9.9
70th %ile Term Code	Gap	Gap	Gap	Hold	Gap		Gap	Coord	Hold	Max	Coord	Gap
50th %ile Green (s)	8.7	18.1	15.2	13.4	22.8		15.2	72.5	13.4	8.0	65.3	8.7
50th %ile Term Code	Gap	Gap	Gap	Hold	Gap		Gap	Coord	Hold	Hold	Coord	Gap
30th %ile Green (s)	7.6	16.1	13.5	12.0	20.5		13.5	75.9	12.0	8.0	70.4	7.6
30th %ile Term Code	Gap	Gap	Gap	Hold	Gap		Gap	Coord	Hold	Hold	Coord	Gap
10th %ile Green (s)	6.0	13.3	11.0	9.8	17.1		11.0	95.9	9.8	0.0	77.9	6.0
10th %ile Term Code	Gap	Gap	Gap	Hold	Gap		Gap	Coord	Hold	Skip	Coord	Gap
Queue Length 50th (ft)	46	141	82	59	192		109	97	0	33	377	6
Queue Length 95th (ft)	78	154	116	97	210		#191	364	101	52	#645	1
Internal Link Dist (ft)		2472			698			1367			1215	
Turn Bay Length (ft)	140		315	110			415		455	415		505
Base Capacity (vph)	232	1030	495	282	1014		335	2565	1007	187	2260	931
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.29	0.57	0.47	0.42		0.73	0.35	0.09	0.37	0.74	0.11























Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 74 (53%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 125
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.74
 Intersection Signal Delay (s/veh): 31.5 Intersection LOS: C
 Intersection Capacity Utilization 75.6% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 5: Veterans Pkwy & E College Ave



Lanes, Volumes, Timings
6: Veterans Pkwy & Von Maur Dr/Jumer Dr

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	35	110	115	55	5	105	1125	120	2	1900	55
Future Volume (vph)	30	35	110	115	55	5	105	1125	120	2	1900	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	90		120	145		225	555		695	530		590
Storage Lanes	1		0	1		0	2		1	1		1
Taper Length (ft)	80			115			220			250		
Satd. Flow (prot)	1745	2959	0	3351	1735	0	3286	4916	1546	1745	4916	1561
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1745	2959	0	3351	1735	0	3286	4916	1546	1745	4916	1561
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		112			3				122			86
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		275			1066			1370			1447	
Travel Time (s)		6.3			24.2			20.8			21.9	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	6%	4%	1%	5%	0%	3%	2%	1%	0%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	31	148	0	117	61	0	107	1148	122	2	1939	56
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases									2			6
Detector Phase	7	4		3	8		5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	10.0	5.0	5.0	10.0	5.0
Minimum Split (s)	12.0	49.0		12.0	49.0		12.0	35.0	12.0	12.0	35.0	12.0
Total Split (s)	12.0	45.0		15.0	48.0		20.0	65.0	15.0	15.0	60.0	12.0
Total Split (%)	8.6%	32.1%		10.7%	34.3%		14.3%	46.4%	10.7%	10.7%	42.9%	8.6%
Maximum Green (s)	5.0	38.0		8.0	41.0		13.0	58.0	8.0	8.0	53.0	5.0
Yellow Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	None	None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		35.0			35.0			21.0			21.0	
Pedestrian Calls (#/hr)		5			5			5			5	
Act Effct Green (s)	5.0	13.6		7.9	18.9		13.0	94.9	109.8	5.8	77.5	82.5
Actuated g/C Ratio	0.04	0.10		0.06	0.14		0.09	0.68	0.78	0.04	0.55	0.59
v/c Ratio	0.50	0.38		0.62	0.26		0.35	0.34	0.10	0.03	0.71	0.06
Control Delay (s/veh)	92.7	18.1		79.4	52.4		78.0	17.6	6.7	98.5	11.4	0.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	92.7	18.1		79.4	52.4		78.0	17.6	6.7	98.5	11.4	0.1
LOS	F	B		E	D		E	B	A	F	B	A
Approach Delay (s/veh)		31.0			70.1			21.4			11.2	
Approach LOS		C			E			C			B	

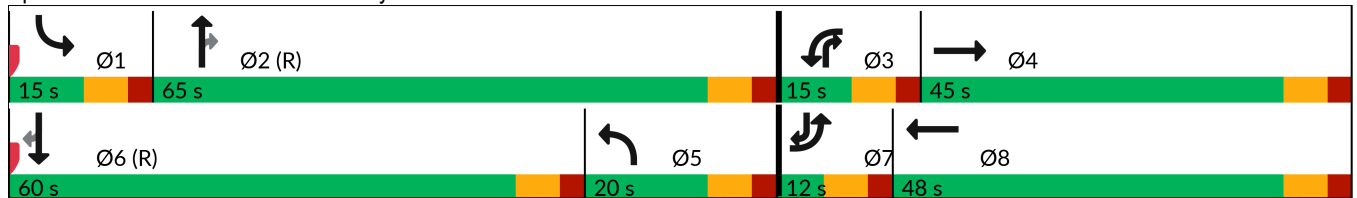
Lanes, Volumes, Timings
6: Veterans Pkwy & Von Maur Dr/Jumer Dr

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
90th %ile Green (s)	5.0	38.0		8.0	41.0		13.0	59.7	8.0	6.3	53.0	5.0
90th %ile Term Code	Max	Ped		Max	Ped		Hold	Coord	Max	Gap	Coord	Max
70th %ile Green (s)	5.0	8.7		8.0	11.7		13.0	102.3	8.0	0.0	82.3	5.0
70th %ile Term Code	Max	Gap		Max	Gap		Hold	Coord	Max	Skip	Coord	Max
50th %ile Green (s)	5.0	7.2		8.0	10.2		13.0	103.8	8.0	0.0	83.8	5.0
50th %ile Term Code	Max	Gap		Max	Hold		Hold	Coord	Max	Skip	Coord	Max
30th %ile Green (s)	5.0	7.0		8.0	10.0		13.0	104.0	8.0	0.0	84.0	5.0
30th %ile Term Code	Max	Min		Max	Hold		Hold	Coord	Max	Skip	Coord	Max
10th %ile Green (s)	0.0	7.0		7.4	21.4		13.0	104.6	7.4	0.0	84.6	0.0
10th %ile Term Code	Skip	Min		Gap	Hold		Hold	Coord	Gap	Skip	Coord	Skip
Queue Length 50th (ft)	28	16		54	52		47	295	16	2	110	0
Queue Length 95th (ft)	#72	41		88	76		m85	451	m120	m2	#815	m1
Internal Link Dist (ft)		195			986			1290			1367	
Turn Bay Length (ft)	90			145			555		695	530		590
Base Capacity (vph)	62	884		191	510		305	3331	1239	99	2722	955
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.17		0.61	0.12		0.35	0.34	0.10	0.02	0.71	0.06

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 116 (83%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 130
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.71
 Intersection Signal Delay (s/veh): 18.7 Intersection LOS: B
 Intersection Capacity Utilization 72.4% ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Veterans Pkwy & Von Maur Dr/Jumer Dr



Lanes, Volumes, Timings
 7: Veterans Pkwy & E Vernon Ave/General Electric Rd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	150	390	270	165	415	110	285	1090	145	165	1700	260
Future Volume (vph)	150	390	270	165	415	110	285	1090	145	165	1700	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	235		140	180		160	530		590	400		685
Storage Lanes	1		1	2		1	2		1	2		1
Taper Length (ft)	80			150			230			210		
Satd. Flow (prot)	3351	3388	1531	3319	3388	1531	3319	4916	1531	3255	4916	1561
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3351	3388	1531	3319	3388	1531	3319	4916	1531	3255	4916	1561
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			140			140			140			140
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		379			486			2185			1370	
Travel Time (s)		8.6			11.0			33.1			20.8	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	1%	3%	2%	2%	3%	2%	2%	2%	2%	4%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	156	406	281	172	432	115	297	1135	151	172	1771	271
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0	5.0	5.0	10.0	5.0	5.0	10.0	5.0
Minimum Split (s)	12.0	49.0	12.0	12.0	49.0	12.0	12.0	41.0	12.0	12.0	41.0	12.0
Total Split (s)	15.0	45.0	20.0	18.0	48.0	19.0	20.0	58.0	18.0	19.0	57.0	15.0
Total Split (%)	10.7%	32.1%	14.3%	12.9%	34.3%	13.6%	14.3%	41.4%	12.9%	13.6%	40.7%	10.7%
Maximum Green (s)	8.0	38.0	13.0	11.0	41.0	12.0	13.0	51.0	11.0	12.0	50.0	8.0
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lead	Lead	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	2.0	2.5	1.0	2.0	2.0	2.5	4.5	1.0	2.0	4.5	1.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		35.0			35.0			27.0			27.0	
Pedestrian Calls (#/hr)		5			5			5			5	
Act Effct Green (s)	9.3	24.6	37.6	9.8	25.0	36.1	13.0	66.6	83.4	11.1	64.6	81.0
Actuated g/C Ratio	0.07	0.18	0.27	0.07	0.18	0.26	0.09	0.48	0.60	0.08	0.46	0.58
v/c Ratio	0.70	0.68	0.55	0.74	0.71	0.23	0.96	0.49	0.16	0.67	0.78	0.28
Control Delay (s/veh)	80.2	59.3	17.0	83.0	60.1	2.6	98.1	18.3	0.7	53.5	53.8	18.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	80.2	59.3	17.0	83.0	60.1	2.6	98.1	18.3	0.7	53.5	53.8	18.7
LOS	F	E	B	F	E	A	F	B	A	D	D	B
Approach Delay (s/veh)		49.1			56.3			31.6			49.5	
Approach LOS		D			E			C			D	

Lanes, Volumes, Timings

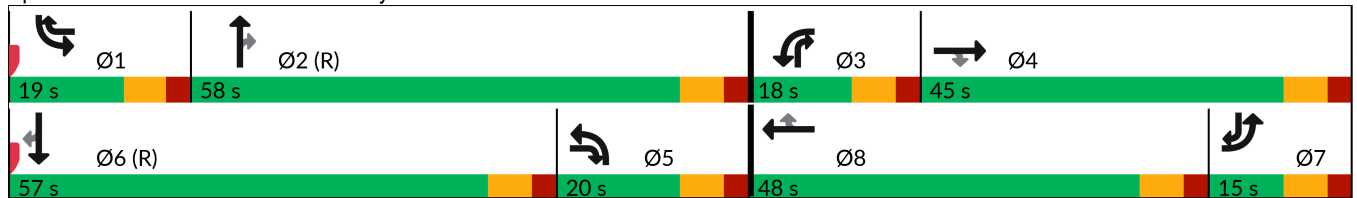
7: Veterans Pkwy & E Vernon Ave/General Electric Rd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
90th %ile Green (s)	8.0	38.0	13.0	11.0	41.0	12.0	13.0	51.0	11.0	12.0	50.0	8.0
90th %ile Term Code	Max	Ped	Max	Max	Ped	Max	Max	Coord	Max	Max	Coord	Max
70th %ile Green (s)	11.8	25.6	13.0	11.0	24.8	13.2	13.0	62.2	11.0	13.2	62.4	11.8
70th %ile Term Code	Gap	Hold	Max	Max	Gap	Gap	Max	Coord	Max	Gap	Coord	Gap
50th %ile Green (s)	10.5	22.3	13.0	10.7	22.5	11.7	13.0	67.3	10.7	11.7	66.0	10.5
50th %ile Term Code	Gap	Hold	Max	Gap	Gap	Gap	Max	Coord	Gap	Gap	Coord	Gap
30th %ile Green (s)	9.2	20.1	13.0	9.2	20.1	10.3	13.0	72.4	9.2	10.3	69.7	9.2
30th %ile Term Code	Gap	Hold	Max	Gap	Gap	Gap	Max	Coord	Gap	Gap	Coord	Gap
10th %ile Green (s)	7.2	16.9	13.0	7.1	16.8	8.1	13.0	79.9	7.1	8.1	75.0	7.2
10th %ile Term Code	Gap	Hold	Max	Gap	Gap	Gap	Max	Coord	Gap	Gap	Coord	Gap
Queue Length 50th (ft)	72	188	82	79	201	0	147	326	1	84	583	171
Queue Length 95th (ft)	#134	214	120	120	221	19	#243	205	2	m121	#735	282
Internal Link Dist (ft)		299			406			2105			1290	
Turn Bay Length (ft)	235		140	180		160	530		590	400		685
Base Capacity (vph)	227	919	513	260	992	510	308	2337	980	284	2269	949
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.44	0.55	0.66	0.44	0.23	0.96	0.49	0.15	0.61	0.78	0.29



















Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 50 (36%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 135
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.96
 Intersection Signal Delay (s/veh): 45.1 Intersection LOS: D
 Intersection Capacity Utilization 80.1% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Veterans Pkwy & E Vernon Ave/General Electric Rd



Lanes, Volumes, Timings
8: Veterans Pkwy & Clearwater Ave

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	 		  		 	  
Traffic Volume (vph)	200	255	1265	160	175	1960
Future Volume (vph)	200	255	1265	160	175	1960
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	335		560	380	
Storage Lanes	2	1		1	2	
Taper Length (ft)	25				240	
Satd. Flow (prot)	3286	1501	4916	1516	3286	4916
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3270	1501	4916	1495	3285	4916
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		18		170		
Link Speed (mph)	30		45			45
Link Distance (ft)	1078		2570			2185
Travel Time (s)	24.5		38.9			33.1
Confl. Peds. (#/hr)	5			1	1	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	4%	2%	3%	3%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	213	271	1346	170	186	2085
Turn Type	Prot	pt+ov	NA	Perm	Prot	NA
Protected Phases	3	1 3	2		1	6
Permitted Phases		3		2		
Detector Phase	3	1 3	2	2	1	6
Switch Phase						
Minimum Initial (s)	8.0		10.0	10.0	6.0	10.0
Minimum Split (s)	49.0		35.0	35.0	13.0	35.0
Total Split (s)	44.0		70.0	70.0	26.0	96.0
Total Split (%)	31.4%		50.0%	50.0%	18.6%	68.6%
Maximum Green (s)	37.0		63.0	63.0	19.0	89.0
Yellow Time (s)	4.5		4.5	4.5	4.5	4.5
All-Red Time (s)	2.5		2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0		7.0	7.0	7.0	7.0
Lead/Lag			Lead	Lead	Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	4.0		3.0	3.0	2.0	3.0
Recall Mode	None		C-Max	C-Max	None	C-Max
Walk Time (s)	7.0		7.0	7.0		
Flash Don't Walk (s)	35.0		21.0	21.0		
Pedestrian Calls (#/hr)	5		5	5		
Act Effct Green (s)	19.1	45.1	80.9	80.9	19.0	106.9
Actuated g/C Ratio	0.14	0.32	0.58	0.58	0.14	0.76
v/c Ratio	0.48	0.55	0.47	0.18	0.42	0.56
Control Delay (s/veh)	57.8	39.5	10.0	1.9	36.1	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	57.8	39.5	10.0	1.9	36.1	5.1
LOS	E	D	B	A	D	A
Approach Delay (s/veh)	47.6		9.1			7.7

Lanes, Volumes, Timings
 8: Veterans Pkwy & Clearwater Ave



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Approach LOS	D		A		A	
90th %ile Green (s)	37.0		63.0	63.0	19.0	89.0
90th %ile Term Code	Ped		Coord	Coord	Max	Coord
70th %ile Green (s)	17.9		82.1	82.1	19.0	108.1
70th %ile Term Code	Gap		Coord	Coord	Max	Coord
50th %ile Green (s)	15.4		84.6	84.6	19.0	110.6
50th %ile Term Code	Gap		Coord	Coord	Max	Coord
30th %ile Green (s)	13.7		86.3	86.3	19.0	112.3
30th %ile Term Code	Gap		Coord	Coord	Max	Coord
10th %ile Green (s)	11.4		88.6	88.6	19.0	114.6
10th %ile Term Code	Gap		Coord	Coord	Hold	Coord
Queue Length 50th (ft)	96	198	307	0	76	51
Queue Length 95th (ft)	115	227	418	47	m88	254
Internal Link Dist (ft)	998		2490		2105	
Turn Bay Length (ft)	335		560		380	
Base Capacity (vph)	868	685	2841	935	445	3754
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.40	0.47	0.18	0.42	0.56

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 35 (25%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.56
 Intersection Signal Delay (s/veh): 12.7 Intersection LOS: B
 Intersection Capacity Utilization 56.2% ICU Level of Service B
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: Veterans Pkwy & Clearwater Ave



Lanes, Volumes, Timings
 9: Veterans Pkwy & Empire Street North Junction



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↶↶			↑↑↑	↑↑↑↑	↷
Traffic Volume (vph)	135	0	0	1290	1930	230
Future Volume (vph)	135	0	0	1290	1930	230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0			480
Storage Lanes	2	0	0			1
Taper Length (ft)	25		25			
Satd. Flow (prot)	3255	0	0	4916	7293	1531
Flt Permitted	0.950					
Satd. Flow (perm)	3255	0	0	4916	7293	1531
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						
Link Speed (mph)	35			45	45	
Link Distance (ft)	383			530	2570	
Travel Time (s)	7.5			8.0	38.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	4%	0%	0%	2%	2%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	141	0	0	1344	2010	240
Turn Type	Prot			NA	NA	pm+ov
Protected Phases	3			2	6	3
Permitted Phases						6
Detector Phase	3			2	6	3
Switch Phase						
Minimum Initial (s)	8.0			15.0	15.0	8.0
Minimum Split (s)	20.0			22.0	22.0	20.0
Total Split (s)	54.0			86.0	86.0	54.0
Total Split (%)	38.6%			61.4%	61.4%	38.6%
Maximum Green (s)	47.0			79.0	79.0	47.0
Yellow Time (s)	4.5			4.5	4.5	4.5
All-Red Time (s)	2.5			2.5	2.5	2.5
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	7.0			7.0	7.0	7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Recall Mode	None			C-Max	C-Max	None
Act Effct Green (s)	11.5			114.5	114.5	140.0
Actuated g/C Ratio	0.08			0.82	0.82	1.00
v/c Ratio	0.53			0.33	0.34	0.16
Control Delay (s/veh)	54.7			0.9	1.5	0.2
Queue Delay	0.0			0.0	0.0	0.0
Total Delay (s/veh)	54.7			0.9	1.5	0.2
LOS	D			A	A	A
Approach Delay (s/veh)	54.7			0.9	1.3	
Approach LOS	D			A	A	
90th %ile Green (s)	14.8			111.2	111.2	14.8
90th %ile Term Code	Gap			Coord	Coord	Gap
70th %ile Green (s)	12.8			113.2	113.2	12.8

Lanes, Volumes, Timings
 9: Veterans Pkwy & Empire Street North Junction

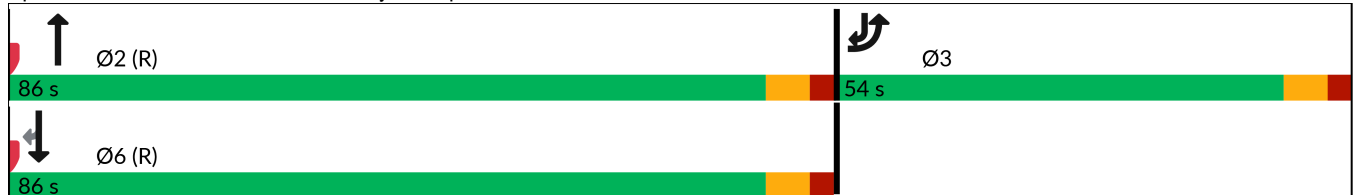


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
70th %ile Term Code	Gap			Coord	Coord	Gap
50th %ile Green (s)	11.5			114.5	114.5	11.5
50th %ile Term Code	Gap			Coord	Coord	Gap
30th %ile Green (s)	10.1			115.9	115.9	10.1
30th %ile Term Code	Gap			Coord	Coord	Gap
10th %ile Green (s)	8.1			117.9	117.9	8.1
10th %ile Term Code	Gap			Coord	Coord	Gap
Queue Length 50th (ft)	70			12	68	0
Queue Length 95th (ft)	108			23	8	0
Internal Link Dist (ft)	303			450	2490	
Turn Bay Length (ft)						480
Base Capacity (vph)	1092			4021	5966	1531
Starvation Cap Reductn	0			314	0	0
Spillback Cap Reductn	0			0	230	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.13			0.36	0.35	0.16

Intersection Summary

Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Offset:	104 (74%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
Natural Cycle:	45
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.53
Intersection Signal Delay (s/veh):	3.2
Intersection LOS:	A
Intersection Capacity Utilization:	43.3%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 9: Veterans Pkwy & Empire Street North Junction



Lanes, Volumes, Timings
 10: E Empire St & Veterans Parkway West Junction



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔↔	↑↑↑	↑↑			↔↔
Traffic Volume (vph)	135	605	885	0	0	230
Future Volume (vph)	135	605	885	0	0	230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	245			0	0	0
Storage Lanes	2			0	0	2
Taper Length (ft)	165				25	
Satd. Flow (prot)	3255	4821	3388	0	0	2668
Flt Permitted	0.950					
Satd. Flow (perm)	3255	4821	3388	0	0	2668
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)						141
Link Speed (mph)		35	35		35	
Link Distance (ft)		2754	530		355	
Travel Time (s)		53.6	10.3		6.9	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	4%	4%	3%	0%	0%	3%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	145	651	952	0	0	247
Turn Type	Prot	NA	NA			Over
Protected Phases	4	2 4	2			4
Permitted Phases						
Detector Phase	4	2 4	2			4
Switch Phase						
Minimum Initial (s)	8.0		8.0			8.0
Minimum Split (s)	21.0		21.0			21.0
Total Split (s)	65.0		75.0			65.0
Total Split (%)	46.4%		53.6%			46.4%
Maximum Green (s)	58.0		68.0			58.0
Yellow Time (s)	4.5		4.5			4.5
All-Red Time (s)	2.5		2.5			2.5
Lost Time Adjust (s)	0.0		0.0			0.0
Total Lost Time (s)	7.0		7.0			7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0		2.0			2.0
Recall Mode	None		C-Max			None
Act Effct Green (s)	13.5	140.0	112.5			13.5
Actuated g/C Ratio	0.10	1.00	0.80			0.10
v/c Ratio	0.46	0.14	0.35			0.64
Control Delay (s/veh)	63.7	0.1	0.5			39.1
Queue Delay	0.0	0.0	0.3			0.0
Total Delay (s/veh)	63.7	0.1	0.8			39.1
LOS	E	A	A			D
Approach Delay (s/veh)		11.7	0.8		39.1	
Approach LOS		B	A		D	
90th %ile Green (s)	19.8		106.2			19.8
90th %ile Term Code	Gap		Coord			Gap
70th %ile Green (s)	15.5		110.5			15.5

Lanes, Volumes, Timings
 10: E Empire St & Veterans Parkway West Junction



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
70th %ile Term Code	Gap		Coord			Gap
50th %ile Green (s)	12.6		113.4			12.6
50th %ile Term Code	Gap		Coord			Gap
30th %ile Green (s)	11.2		114.8			11.2
30th %ile Term Code	Gap		Coord			Gap
10th %ile Green (s)	8.3		117.7			8.3
10th %ile Term Code	Gap		Coord			Gap
Queue Length 50th (ft)	65	0	4			38
Queue Length 95th (ft)	96	0	2			97
Internal Link Dist (ft)		2674	450		275	
Turn Bay Length (ft)	245					
Base Capacity (vph)	1348	4821	2723			1187
Starvation Cap Reductn	0	0	968			0
Spillback Cap Reductn	0	0	0			0
Storage Cap Reductn	0	0	0			0
Reduced v/c Ratio	0.11	0.14	0.54			0.21

Intersection Summary

Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Offset:	53 (38%), Referenced to phase 2:EBWB, Start of 1st Green
Natural Cycle:	45
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.64
Intersection Signal Delay (s/veh):	9.9
Intersection LOS:	A
Intersection Capacity Utilization:	44.2%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 10: E Empire St & Veterans Parkway West Junction



Lanes, Volumes, Timings
 11: Veterans Pkwy & E Empire St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗	↘↘	↑↑↑		↘↘	↑↑↑	
Traffic Volume (vph)	0	515	125	0	645	125	240	1165	0	220	1710	0
Future Volume (vph)	0	515	125	0	645	125	240	1165	0	220	1710	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	3355	1501	0	3421	1531	3319	4916	0	3319	4916	0
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	3355	1501	0	3421	1531	3319	4916	0	3319	4916	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			86			86						
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		530			509			475			530	
Travel Time (s)		10.3			9.9			7.2			8.0	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	4%	4%	0%	2%	2%	2%	2%	0%	2%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	542	132	0	679	132	253	1226	0	232	1800	0
Turn Type		NA	pm+ov		NA	pm+ov	Prot	NA		Prot	NA	
Protected Phases		4	5		8	1	5	2		1	6	
Permitted Phases			4			8						
Detector Phase		4	5		8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)		15.0	5.0		15.0	5.0	5.0	15.0		5.0	15.0	
Minimum Split (s)		22.0	19.0		22.0	12.0	19.0	22.0		12.0	22.0	
Total Split (s)		49.0	21.0		49.0	22.0	21.0	69.0		22.0	70.0	
Total Split (%)		35.0%	15.0%		35.0%	15.7%	15.0%	49.3%		15.7%	50.0%	
Maximum Green (s)		42.0	14.0		42.0	15.0	14.0	62.0		15.0	63.0	
Yellow Time (s)		4.5	4.5		4.5	4.5	4.5	4.5		4.5	4.5	
All-Red Time (s)		2.5	2.5		2.5	2.5	2.5	2.5		2.5	2.5	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	
Lead/Lag			Lag			Lead	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode		None	None		None	None	None	C-Max		None	C-Max	
Act Effct Green (s)		34.3	55.3		34.3	55.5	14.0	70.5		14.2	70.7	
Actuated g/C Ratio		0.25	0.40		0.25	0.40	0.10	0.50		0.10	0.51	
v/c Ratio		0.66	0.20		0.81	0.20	0.76	0.50		0.69	0.73	
Control Delay (s/veh)		51.2	10.4		57.7	10.0	53.7	4.6		75.8	26.9	
Queue Delay		0.0	0.0		0.1	0.0	0.0	0.2		0.0	1.4	
Total Delay (s/veh)		51.2	10.4		57.8	10.0	53.7	4.8		75.8	28.3	
LOS		D	B		E	A	D	A		E	C	
Approach Delay (s/veh)		43.2			50.0			13.2			33.7	
Approach LOS		D			D			B			C	
90th %ile Green (s)		41.7	14.0		41.7	15.3	14.0	62.0		15.3	63.3	
90th %ile Term Code		Hold	Max		Gap	Max	Max	Coord		Max	Coord	
70th %ile Green (s)		37.4	14.0		37.4	16.7	14.0	64.9		16.7	67.6	
70th %ile Term Code		Hold	Max		Gap	Gap	Max	Coord		Gap	Coord	
50th %ile Green (s)		34.0	14.0		34.0	15.0	14.0	70.0		15.0	71.0	
50th %ile Term Code		Hold	Max		Gap	Gap	Max	Coord		Gap	Coord	

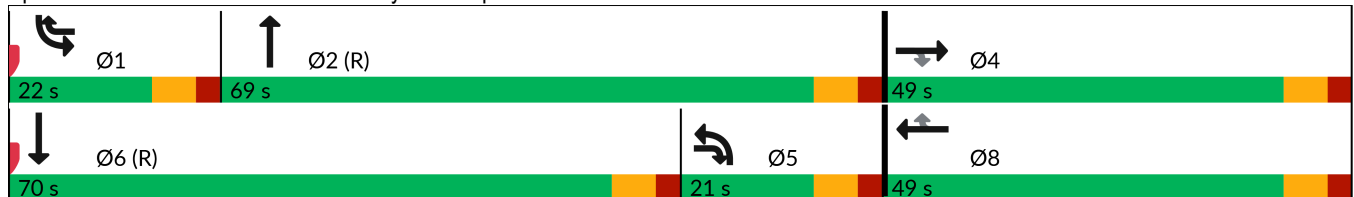
Lanes, Volumes, Timings
 11: Veterans Pkwy & E Empire St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
30th %ile Green (s)		31.2	14.0		31.2	13.3	14.0	74.5		13.3	73.8	
30th %ile Term Code		Hold	Max		Gap	Gap	Max	Coord		Gap	Coord	
10th %ile Green (s)		27.2	14.0		27.2	10.9	14.0	80.9		10.9	77.8	
10th %ile Term Code		Hold	Hold		Gap	Gap	Hold	Coord		Gap	Coord	
Queue Length 50th (ft)		236	26		309	26	120	49		100	336	
Queue Length 95th (ft)		277	64		355	63	#176	29		141	538	
Internal Link Dist (ft)		450			429			395			450	
Turn Bay Length (ft)												
Base Capacity (vph)		1006	644		1026	671	331	2474		364	2482	
Starvation Cap Reductn		0	0		29	0	0	385		0	102	
Spillback Cap Reductn		0	7		0	0	0	0		0	449	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.54	0.21		0.68	0.20	0.76	0.59		0.64	0.89	

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 83 (59%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay (s/veh): 31.6 Intersection LOS: C
 Intersection Capacity Utilization 75.2% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 11: Veterans Pkwy & E Empire St

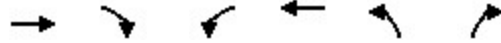


Lanes, Volumes, Timings

12: Veterans Parkway East Junction & E Empire St

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘↙	↑↑↑		↗↘
Traffic Volume (vph)	735	0	400	770	0	275
Future Volume (vph)	735	0	400	770	0	275
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	245		0	0
Storage Lanes		0	2		0	2
Taper Length (ft)			125		25	
Satd. Flow (prot)	3355	0	3319	4916	0	2694
Flt Permitted			0.950			
Satd. Flow (perm)	3355	0	3319	4916	0	2694
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						284
Link Speed (mph)	35			35	35	
Link Distance (ft)	509			2577	334	
Travel Time (s)	9.9			50.2	6.5	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	4%	0%	2%	2%	0%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	758	0	412	794	0	284
Turn Type	NA		Prot	NA		Over
Protected Phases	2		4	2 4		4
Permitted Phases						
Detector Phase	2		4	2 4		4
Switch Phase						
Minimum Initial (s)	15.0		8.0			8.0
Minimum Split (s)	22.0		21.0			21.0
Total Split (s)	80.0		60.0			60.0
Total Split (%)	57.1%		42.9%			42.9%
Maximum Green (s)	73.0		53.0			53.0
Yellow Time (s)	4.5		4.5			4.5
All-Red Time (s)	2.5		2.5			2.5
Lost Time Adjust (s)	0.0		0.0			0.0
Total Lost Time (s)	7.0		7.0			7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0			3.0
Recall Mode	C-Max		None			None
Act Effct Green (s)	94.0		32.0	140.0		32.0
Actuated g/C Ratio	0.67		0.23	1.00		0.23
v/c Ratio	0.34		0.54	0.16		0.34
Control Delay (s/veh)	5.0		49.2	0.1		14.1
Queue Delay	0.5		0.0	0.0		0.0
Total Delay (s/veh)	5.5		49.2	0.1		14.1
LOS	A		D	A		B
Approach Delay (s/veh)	5.5			16.9	14.1	
Approach LOS	A			B	B	
90th %ile Green (s)	81.8		44.2			44.2
90th %ile Term Code	Coord		Gap			Gap
70th %ile Green (s)	89.7		36.3			36.3

Lanes, Volumes, Timings
 12: Veterans Parkway East Junction & E Empire St



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
70th %ile Term Code	Coord		Gap			Gap
50th %ile Green (s)	94.3		31.7			31.7
50th %ile Term Code	Coord		Gap			Gap
30th %ile Green (s)	99.1		26.9			26.9
30th %ile Term Code	Coord		Gap			Gap
10th %ile Green (s)	105.1		20.9			20.9
10th %ile Term Code	Coord		Gap			Gap
Queue Length 50th (ft)	0		172	0		60
Queue Length 95th (ft)	306		199	0		86
Internal Link Dist (ft)	429			2497	254	
Turn Bay Length (ft)			245			
Base Capacity (vph)	2252		1256	4916		1196
Starvation Cap Reductn	989		0	0		0
Spillback Cap Reductn	0		0	0		0
Storage Cap Reductn	0		0	0		0
Reduced v/c Ratio	0.60		0.33	0.16		0.24

















Intersection Summary

Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Offset:	70 (50%), Referenced to phase 2:EBWB, Start of 1st Green
Natural Cycle:	45
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.54
Intersection Signal Delay (s/veh):	12.7
Intersection LOS:	B
Intersection Capacity Utilization:	43.4%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 12: Veterans Parkway East Junction & E Empire St



Lanes, Volumes, Timings
 13: Veterans Pkwy & Empire Street South Junction

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	 		   			  
Traffic Volume (vph)	400	0	1405	275	0	1835
Future Volume (vph)	400	0	1405	275	0	1835
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		410	0	
Storage Lanes	2	0		1	0	
Taper Length (ft)	25				25	
Satd. Flow (prot)	3319	0	7293	1531	0	4916
Flt Permitted	0.950					
Satd. Flow (perm)	3319	0	7293	1531	0	4916
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)						
Link Speed (mph)	35		45			45
Link Distance (ft)	378		1025			475
Travel Time (s)	7.4		15.5			7.2
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	0%	2%	2%	0%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	417	0	1464	286	0	1911
Turn Type	Prot		NA	pm+ov		NA
Protected Phases	3		2	3		6
Permitted Phases				2		
Detector Phase	3		2	3		6
Switch Phase						
Minimum Initial (s)	6.0		15.0	6.0		15.0
Minimum Split (s)	15.0		23.5	15.0		22.0
Total Split (s)	40.0		100.0	40.0		100.0
Total Split (%)	28.6%		71.4%	28.6%		71.4%
Maximum Green (s)	33.0		93.0	33.0		93.0
Yellow Time (s)	4.5		4.5	4.5		4.5
All-Red Time (s)	2.5		2.5	2.5		2.5
Lost Time Adjust (s)	0.0		0.0	0.0		0.0
Total Lost Time (s)	7.0		7.0	7.0		7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0		2.0	2.0		2.0
Recall Mode	None		C-Max	None		C-Max
Act Effct Green (s)	22.0		104.0	140.0		104.0
Actuated g/C Ratio	0.16		0.74	1.00		0.74
v/c Ratio	0.80		0.27	0.19		0.52
Control Delay (s/veh)	53.1		4.4	0.2		8.3
Queue Delay	0.0		0.0	0.0		1.5
Total Delay (s/veh)	53.1		4.4	0.2		9.8
LOS	D		A	A		A
Approach Delay (s/veh)	53.1		3.7			9.8
Approach LOS	D		A			A
90th %ile Green (s)	27.6		98.4	27.6		98.4
90th %ile Term Code	Gap		Coord	Gap		Coord
70th %ile Green (s)	24.3		101.7	24.3		101.7

Lanes, Volumes, Timings
 13: Veterans Pkwy & Empire Street South Junction



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
70th %ile Term Code	Gap		Coord	Gap		Coord
50th %ile Green (s)	22.0		104.0	22.0		104.0
50th %ile Term Code	Gap		Coord	Gap		Coord
30th %ile Green (s)	19.8		106.2	19.8		106.2
30th %ile Term Code	Gap		Coord	Gap		Coord
10th %ile Green (s)	16.4		109.6	16.4		109.6
10th %ile Term Code	Gap		Coord	Gap		Coord
Queue Length 50th (ft)	209		112	0		352
Queue Length 95th (ft)	264		18	0		606
Internal Link Dist (ft)	298		945			395
Turn Bay Length (ft)				410		
Base Capacity (vph)	782		5416	1527		3651
Starvation Cap Reductn	0		0	0		1462
Spillback Cap Reductn	0		0	0		0
Storage Cap Reductn	0		0	0		0
Reduced v/c Ratio	0.53		0.27	0.19		0.87























Intersection Summary

Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Offset:	106 (76%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
Natural Cycle:	45
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.80
Intersection Signal Delay (s/veh):	11.6
Intersection LOS:	B
Intersection Capacity Utilization	58.5%
ICU Level of Service	B
Analysis Period (min)	15

Splits and Phases: 13: Veterans Pkwy & Empire Street South Junction



Lanes, Volumes, Timings
14: Veterans Pkwy & Eastland Dr

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	45	25	60	65	85	80	1545	80	125	1845	265
Future Volume (vph)	50	45	25	60	65	85	80	1545	80	125	1845	265
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		105	145		305	535		535	365		555
Storage Lanes	1		0	1		0	1		1	2		0
Taper Length (ft)	215			125			225			230		
Satd. Flow (prot)	1662	3148	0	1662	3157	0	1711	4916	1531	3351	4814	0
Flt Permitted	0.652			0.631			0.950			0.950		
Satd. Flow (perm)	1140	3148	0	1103	3157	0	1710	4916	1531	3351	4814	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			89				86			24
Link Speed (mph)		30			30			45				45
Link Distance (ft)		1352			1635			1478				1025
Travel Time (s)		30.7			37.2			22.4				15.5
Confl. Peds. (#/hr)			1	1			1					1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	5%	2%	9%	5%	0%	2%	2%	2%	2%	1%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	73	0	63	157	0	83	1609	83	130	2198	0
Turn Type	pm+pt	NA		pm+pt	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases	4			8					2			
Detector Phase	7	4		3	8		5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	15.0	5.0	5.0	15.0	
Minimum Split (s)	12.0	49.0		12.0	46.0		12.0	35.0	12.0	12.0	35.0	
Total Split (s)	12.0	42.0		12.0	42.0		17.0	69.0	12.0	17.0	69.0	
Total Split (%)	8.6%	30.0%		8.6%	30.0%		12.1%	49.3%	8.6%	12.1%	49.3%	
Maximum Green (s)	5.0	35.0		5.0	35.0		10.0	62.0	5.0	10.0	62.0	
Yellow Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5	2.5	2.5	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.5	2.0		1.5	2.0		3.0	3.0	1.5	3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max	None	None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		35.0			32.0			21.0			21.0	
Pedestrian Calls (#/hr)		5			5			5			5	
Act Effct Green (s)	16.7	13.1		17.1	13.1		11.1	86.3	93.1	10.0	85.2	
Actuated g/C Ratio	0.12	0.09		0.12	0.09		0.08	0.62	0.67	0.07	0.61	
v/c Ratio	0.34	0.23		0.40	0.42		0.61	0.53	0.08	0.54	0.75	
Control Delay (s/veh)	52.1	37.6		55.2	27.8		94.9	3.8	0.2	45.8	7.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	52.1	37.6		55.2	27.8		94.9	3.8	0.2	45.8	7.5	
LOS	D	D		E	C		F	A	A	D	A	
Approach Delay (s/veh)		43.6			35.6			7.9			9.7	

Lanes, Volumes, Timings
 14: Veterans Pkwy & Eastland Dr

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			D			A			A		
90th %ile Green (s)	5.0	35.0		5.0	35.0		10.0	62.0	5.0	10.0	62.0	
90th %ile Term Code	Max	Ped		Max	Ped		Max	Coord	Max	Max	Coord	
70th %ile Green (s)	5.0	9.0		5.0	9.0		14.4	88.0	5.0	10.0	83.6	
70th %ile Term Code	Max	Hold		Max	Gap		Gap	Coord	Max	Max	Coord	
50th %ile Green (s)	5.0	7.5		5.0	7.5		12.5	89.5	5.0	10.0	87.0	
50th %ile Term Code	Max	Hold		Max	Gap		Gap	Coord	Max	Max	Coord	
30th %ile Green (s)	5.0	7.0		5.0	7.0		10.6	90.0	5.0	10.0	89.4	
30th %ile Term Code	Max	Min		Max	Min		Gap	Coord	Max	Hold	Coord	
10th %ile Green (s)	0.0	0.0		7.0	7.0		7.8	102.0	7.0	10.0	104.2	
10th %ile Term Code	Skip	Skip		Hold	Min		Gap	Coord	Hold	Hold	Coord	
Queue Length 50th (ft)	43	22		52	32		65	24	0	60	19	
Queue Length 95th (ft)	65	38		75	55		m#122	263	m0	90	#848	
Internal Link Dist (ft)	1272			1555			1398			945		
Turn Bay Length (ft)	350			145			535			365		
Base Capacity (vph)	154	806		156	856		140	3030	1046	239	2940	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.34	0.09		0.40	0.18		0.59	0.53	0.08	0.54	0.75	

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 90 (64%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.75
 Intersection Signal Delay (s/veh): 11.2 Intersection LOS: B
 Intersection Capacity Utilization 80.3% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 14: Veterans Pkwy & Eastland Dr



Lanes, Volumes, Timings
 15: Veterans Pkwy & E Washington St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	110	195	80	75	290	160	240	1435	125	105	1280	545
Future Volume (vph)	110	195	80	75	290	160	240	1435	125	105	1280	545
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	315		310	160		315	495		490	435		615
Storage Lanes	2		1	2		1	1		1	1		1
Taper Length (ft)	50			155			225			235		
Satd. Flow (prot)	3385	3355	1516	3351	3455	1561	1711	4916	1546	1694	4868	1561
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3385	3355	1497	3351	3455	1539	1710	4916	1546	1694	4868	1539
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			140			140			133			238
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		494			1269			1707			1478	
Travel Time (s)		11.2			28.8			25.9			22.4	
Confl. Peds. (#/hr)							1					1
Confl. Bikes (#/hr)			1			4						1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	4%	3%	1%	1%	0%	2%	2%	1%	3%	3%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	117	207	85	80	309	170	255	1527	133	112	1362	580
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	8.0	5.0	5.0	8.0	5.0	5.0	10.0	5.0	5.0	10.0	5.0
Minimum Split (s)	12.0	49.0	12.0	12.0	49.0	12.0	12.0	41.0	12.0	12.0	41.0	12.0
Total Split (s)	18.0	53.0	31.0	14.0	49.0	18.0	31.0	55.0	14.0	18.0	42.0	18.0
Total Split (%)	12.9%	37.9%	22.1%	10.0%	35.0%	12.9%	22.1%	39.3%	10.0%	12.9%	30.0%	12.9%
Maximum Green (s)	11.0	46.0	24.0	7.0	42.0	11.0	24.0	48.0	7.0	11.0	35.0	11.0
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Walk Time (s)		7.0			5.0			7.0			7.0	
Flash Don't Walk (s)		35.0			35.0			27.0			27.0	
Pedestrian Calls (#/hr)		5			5			5			5	
Act Effct Green (s)	11.0	25.8	49.8	6.6	21.4	34.9	24.0	66.1	79.8	13.4	55.6	66.6
Actuated g/C Ratio	0.08	0.18	0.36	0.05	0.15	0.25	0.17	0.47	0.57	0.10	0.40	0.48
v/c Ratio	0.44	0.34	0.14	0.51	0.59	0.35	0.87	0.66	0.14	0.69	0.70	0.68
Control Delay (s/veh)	67.2	49.6	0.6	76.3	58.5	9.3	61.6	12.3	1.9	54.6	33.7	24.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	67.2	49.6	0.6	76.3	58.5	9.3	61.6	12.3	1.9	54.6	33.7	24.4
LOS	E	D	A	E	E	A	E	B	A	D	C	C

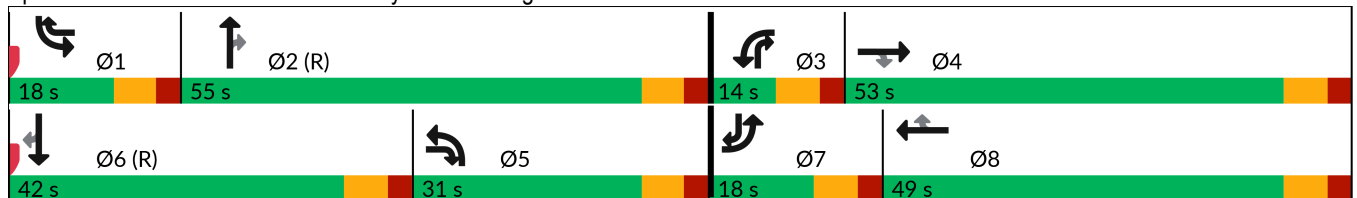
Lanes, Volumes, Timings
 15: Veterans Pkwy & E Washington St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay (s/veh)	44.4			46.1			18.1			32.2		
Approach LOS	D			D			B			C		
90th %ile Green (s)	11.0	44.0	24.0	7.0	40.0	13.0	24.0	48.0	7.0	13.0	37.0	11.0
90th %ile Term Code	Max	Hold	Max	Max	Ped	Max	Max	Coord	Max	Max	Coord	Max
70th %ile Green (s)	11.0	23.9	24.0	7.0	19.9	16.8	24.0	64.3	7.0	16.8	57.1	11.0
70th %ile Term Code	Max	Hold	Max	Max	Gap	Gap	Max	Coord	Max	Gap	Coord	Max
50th %ile Green (s)	11.0	21.9	24.0	7.0	17.9	15.1	24.0	68.0	7.0	15.1	59.1	11.0
50th %ile Term Code	Max	Hold	Max	Max	Gap	Gap	Max	Coord	Max	Gap	Coord	Max
30th %ile Green (s)	11.0	20.2	24.0	6.8	16.0	12.8	24.0	72.2	6.8	12.8	61.0	11.0
30th %ile Term Code	Max	Hold	Hold	Gap	Gap	Gap	Hold	Coord	Gap	Gap	Coord	Max
10th %ile Green (s)	11.0	18.9	24.0	5.4	13.3	9.5	24.0	78.2	5.4	9.5	63.7	11.0
10th %ile Term Code	Max	Hold	Hold	Gap	Gap	Gap	Hold	Coord	Gap	Gap	Coord	Max
Queue Length 50th (ft)	53	90	0	37	144	20	237	160	0	88	463	372
Queue Length 95th (ft)	86	105	2	66	160	61	#379	450	32	m142	#613	#607
Internal Link Dist (ft)	414			1189			1627			1398		
Turn Bay Length (ft)	315		310	160		315	495		490	435		615
Base Capacity (vph)	265	1102	625	167	1036	493	293	2322	941	166	1932	858
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.19	0.14	0.48	0.30	0.34	0.87	0.66	0.14	0.67	0.70	0.68

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 45 (32%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 125
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.87
 Intersection Signal Delay (s/veh): 29.3 Intersection LOS: C
 Intersection Capacity Utilization 77.1% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: Veterans Pkwy & E Washington St



Lanes, Volumes, Timings
 16: Veterans Pkwy & E Jackson St



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	15	80	1795	1260	175
Future Volume (vph)	5	15	80	1795	1260	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	130			570
Storage Lanes	1	1	1			0
Taper Length (ft)	25		185			
Satd. Flow (prot)	1745	1561	1745	4916	4797	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1743	1561	1745	4916	4797	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		16			24	
Link Speed (mph)	25			45	45	
Link Distance (ft)	493			666	1707	
Travel Time (s)	13.4			10.1	25.9	
Confl. Peds. (#/hr)	1					
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	2%	3%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	5	16	84	1889	1510	0
Turn Type	Prot	pt+ov	Prot	NA	NA	
Protected Phases	3	3 5	5	2	6	
Permitted Phases						
Detector Phase	3	3 5	5	2	6	
Switch Phase						
Minimum Initial (s)	5.0		5.0	10.0	10.0	
Minimum Split (s)	46.0		12.0	17.0	32.0	
Total Split (s)	41.0		27.0	99.0	72.0	
Total Split (%)	29.3%		19.3%	70.7%	51.4%	
Maximum Green (s)	34.0		20.0	92.0	65.0	
Yellow Time (s)	4.5		4.5	4.5	4.5	
All-Red Time (s)	2.5		2.5	2.5	2.5	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	7.0		7.0	7.0	7.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	None		None	C-Max	C-Max	
Walk Time (s)	7.0				7.0	
Flash Don't Walk (s)	32.0				18.0	
Pedestrian Calls (#/hr)	5				5	
Act Effct Green (s)	11.4	25.5	12.1	122.4	100.5	
Actuated g/C Ratio	0.08	0.18	0.09	0.87	0.72	
v/c Ratio	0.04	0.05	0.56	0.44	0.44	
Control Delay (s/veh)	51.6	13.0	81.0	2.0	5.6	
Queue Delay	0.0	0.0	0.0	0.1	0.0	
Total Delay (s/veh)	51.6	13.0	81.0	2.1	5.6	
LOS	D	B	F	A	A	
Approach Delay (s/veh)	22.2			5.4	5.6	

Lanes, Volumes, Timings
 16: Veterans Pkwy & E Jackson St



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach LOS	C		A		A	
90th %ile Green (s)	34.0		16.8	92.0	68.2	
90th %ile Term Code	Ped		Gap	Coord	Coord	
70th %ile Green (s)	6.3		14.0	119.7	98.7	
70th %ile Term Code	Gap		Gap	Coord	Coord	
50th %ile Green (s)	5.8		12.1	120.2	101.1	
50th %ile Term Code	Gap		Gap	Coord	Coord	
30th %ile Green (s)	0.0		10.2	133.0	115.8	
30th %ile Term Code	Skip		Gap	Coord	Coord	
10th %ile Green (s)	0.0		7.3	133.0	118.7	
10th %ile Term Code	Skip		Gap	Coord	Coord	
Queue Length 50th (ft)	5	0	79	53	8	
Queue Length 95th (ft)	15	15	m103	m166	125	
Internal Link Dist (ft)	413		586		1627	
Turn Bay Length (ft)			130			
Base Capacity (vph)	423	451	249	4297	3450	
Starvation Cap Reductn	0	0	0	606	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.01	0.04	0.34	0.51	0.44	























Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 14 (10%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.56
 Intersection Signal Delay (s/veh): 5.6 Intersection LOS: A
 Intersection Capacity Utilization 54.3% ICU Level of Service A
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: Veterans Pkwy & E Jackson St



Lanes, Volumes, Timings
17: Veterans Pkwy & Oakland Ave

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	235	295	65	110	395	310	160	1330	135	125	945	205
Future Volume (vph)	235	295	65	110	395	310	160	1330	135	125	945	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	410		0	280		240	400		450	175		160
Storage Lanes	1		0	1		0	2		1	2		1
Taper Length (ft)	90			115			275			190		
Satd. Flow (prot)	1728	3151	0	1745	3245	0	3351	4916	1561	3255	4868	1459
Flt Permitted	0.103			0.527			0.950			0.950		
Satd. Flow (perm)	187	3151	0	968	3245	0	3351	4916	1561	3255	4868	1459
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20			139				142			129
Link Speed (mph)		30			35			45				45
Link Distance (ft)		1460			1350			2739				666
Travel Time (s)		33.2			26.3			41.5				10.1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	9%	2%	0%	0%	1%	1%	2%	0%	4%	3%	7%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	247	379	0	116	742	0	168	1400	142	132	995	216
Turn Type	pm+pt	NA		pm+pt	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases	4			8					2			6
Detector Phase	7	4		3	8		5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	8.0		5.0	8.0		5.0	12.0	5.0	5.0	12.0	5.0
Minimum Split (s)	12.0	49.0		12.0	49.0		12.0	35.0	12.0	12.0	35.0	12.0
Total Split (s)	23.0	53.0		15.0	45.0		19.0	57.0	15.0	15.0	53.0	23.0
Total Split (%)	16.4%	37.9%		10.7%	32.1%		13.6%	40.7%	10.7%	10.7%	37.9%	16.4%
Maximum Green (s)	16.0	46.0		8.0	38.0		12.0	50.0	8.0	8.0	46.0	16.0
Yellow Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lead	Lead	Lag	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	6.0	2.0	2.0	6.0	2.0
Recall Mode	None	None		None	None		None	C-Max	None	None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		35.0			35.0			21.0			21.0	
Pedestrian Calls (#/hr)		5			5			5			5	
Act Effct Green (s)	54.8	39.9		39.6	31.8		10.8	56.2	64.1	8.0	53.4	76.4
Actuated g/C Ratio	0.39	0.29		0.28	0.23		0.08	0.40	0.46	0.06	0.38	0.55
v/c Ratio	0.99	0.42		0.37	0.88		0.65	0.71	0.18	0.71	0.54	0.25
Control Delay (s/veh)	93.8	39.1		31.5	54.5		73.4	21.3	1.8	59.1	17.4	0.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	93.8	39.1		31.5	54.5		73.4	21.3	1.8	59.1	17.4	0.9
LOS	F	D		C	D		E	C	A	E	B	A
Approach Delay (s/veh)		60.7			51.4			24.8			18.8	
Approach LOS		E			D			C			B	

Lanes, Volumes, Timings
 17: Veterans Pkwy & Oakland Ave

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
90th %ile Green (s)	16.0	46.0		8.0	38.0		12.0	50.0	8.0	8.0	46.0	16.0
90th %ile Term Code	Max	Hold		Max	Ped		Max	Coord	Max	Max	Coord	Max
70th %ile Green (s)	16.0	43.5		8.0	35.5		12.8	52.5	8.0	8.0	47.7	16.0
70th %ile Term Code	Max	Hold		Max	Gap		Gap	Coord	Max	Max	Coord	Max
50th %ile Green (s)	16.0	40.4		8.0	32.4		11.4	55.6	8.0	8.0	52.2	16.0
50th %ile Term Code	Max	Hold		Max	Gap		Gap	Coord	Max	Max	Coord	Max
30th %ile Green (s)	16.0	37.2		8.0	29.2		9.9	58.8	8.0	8.0	56.9	16.0
30th %ile Term Code	Max	Hold		Max	Gap		Gap	Coord	Max	Max	Coord	Max
10th %ile Green (s)	16.0	32.6		7.1	23.7		7.9	64.3	7.1	8.0	64.4	16.0
10th %ile Term Code	Max	Hold		Gap	Gap		Gap	Coord	Gap	Hold	Coord	Max
Queue Length 50th (ft)	177	138		68	286		68	417	22	52	47	0
Queue Length 95th (ft)	#343	176		105	347		105	156	0	#103	276	0
Internal Link Dist (ft)		1380			1270			2659			586	
Turn Bay Length (ft)	410			280			400		450	175		160
Base Capacity (vph)	249	1048		319	982		291	1974	793	186	1858	855
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.36		0.36	0.76		0.58	0.71	0.18	0.71	0.54	0.25

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 30 (21%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.99
 Intersection Signal Delay (s/veh): 33.0 Intersection LOS: C
 Intersection Capacity Utilization 87.1% ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 17: Veterans Pkwy & Oakland Ave



Lanes, Volumes, Timings
 18: Veterans Pkwy & E Lincoln St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	95	50	50	130	100	40	1400	85	30	950	140
Future Volume (vph)	125	95	50	50	130	100	40	1400	85	30	950	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190		135	245		345	415		480	365		420
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	165			190			240			230		
Satd. Flow (prot)	1694	3075	0	1694	3154	0	1745	4877	0	1745	4828	0
Flt Permitted	0.377			0.654			0.950			0.950		
Satd. Flow (perm)	672	3075	0	1166	3154	0	1745	4877	0	1745	4828	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		53			106			8				23
Link Speed (mph)		30			30			45				45
Link Distance (ft)		528			572			1313				2739
Travel Time (s)		12.0			13.0			19.9				41.5
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	10%	3%	3%	2%	4%	0%	2%	0%	0%	2%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	133	154	0	53	244	0	43	1579	0	32	1160	0
Turn Type	pm+pt	NA		pm+pt	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8								
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	8.0		5.0	8.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	12.0	46.0		12.0	46.0		12.0	38.0		12.0	38.0	
Total Split (s)	19.0	48.0		14.0	43.0		15.0	66.0		12.0	63.0	
Total Split (%)	13.6%	34.3%		10.0%	30.7%		10.7%	47.1%		8.6%	45.0%	
Maximum Green (s)	12.0	41.0		7.0	36.0		8.0	59.0		5.0	56.0	
Yellow Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0		1.0	1.0		1.0	3.0		1.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		32.0			32.0			24.0			24.0	
Pedestrian Calls (#/hr)		5			5			5			5	
Act Effct Green (s)	31.2	21.8		21.1	14.7		7.4	83.0		5.7	81.2	
Actuated g/C Ratio	0.22	0.16		0.15	0.11		0.05	0.59		0.04	0.58	
v/c Ratio	0.58	0.29		0.27	0.57		0.47	0.55		0.46	0.41	
Control Delay (s/veh)	52.5	34.1		42.5	37.0		58.6	4.8		94.4	7.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	52.5	34.1		42.5	37.0		58.6	4.8		94.4	7.5	
LOS	D	C		D	D		E	A		F	A	
Approach Delay (s/veh)		42.7			38.0			6.2			9.9	

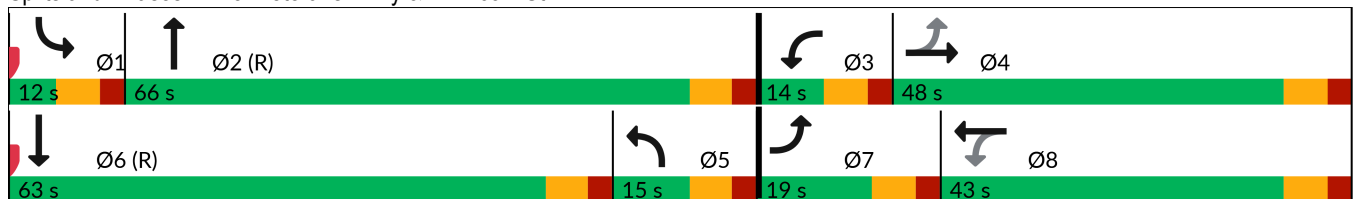
Lanes, Volumes, Timings
 18: Veterans Pkwy & E Lincoln St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			D			A					
90th %ile Green (s)	12.0	41.0		7.0	36.0		8.0	59.0		5.0	56.0	
90th %ile Term Code	Max	Hold		Max	Ped		Max	Coord		Max	Coord	
70th %ile Green (s)	12.0	16.8		7.0	11.8		8.0	80.9		7.3	80.2	
70th %ile Term Code	Max	Hold		Max	Gap		Max	Coord		Gap	Coord	
50th %ile Green (s)	12.0	14.8		7.0	9.8		8.0	84.1		6.1	82.2	
50th %ile Term Code	Max	Hold		Max	Gap		Hold	Coord		Gap	Coord	
30th %ile Green (s)	11.1	13.3		5.8	8.0		8.0	87.9		5.0	84.9	
30th %ile Term Code	Gap	Hold		Gap	Min		Hold	Coord		Min	Coord	
10th %ile Green (s)	8.1	23.1		0.0	8.0		0.0	102.9		0.0	102.9	
10th %ile Term Code	Gap	Hold		Skip	Min		Skip	Coord		Skip	Coord	
Queue Length 50th (ft)	105	45		40	65		0	52		30	57	
Queue Length 95th (ft)	129	64		60	90		m0	57		m#59	406	
Internal Link Dist (ft)		448			492			1233			2659	
Turn Bay Length (ft)	190			245			415			365		
Base Capacity (vph)	238	938		207	889		99	2893		70	2811	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.56	0.16		0.26	0.27		0.43	0.55		0.46	0.41	

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 117 (84%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.58
 Intersection Signal Delay (s/veh): 13.4 Intersection LOS: B
 Intersection Capacity Utilization 65.4% ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 18: Veterans Pkwy & E Lincoln St



Lanes, Volumes, Timings
 19: Veterans Pkwy & Ireland Grove Rd



Lane Group	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (vph)	205	140	1385	200	200	850
Future Volume (vph)	205	140	1385	200	200	850
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		585	340	
Storage Lanes	2	1		0	1	
Taper Length (ft)	25				230	
Satd. Flow (prot)	3283	1393	4764	0	1728	4868
Flt Permitted	0.959				0.950	
Satd. Flow (perm)	3283	1393	4764	0	1728	4868
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	12	5	22			
Link Speed (mph)	35		45			45
Link Distance (ft)	485		1559			1313
Travel Time (s)	9.4		23.6			19.9
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	3%	5%	1%	3%
Shared Lane Traffic (%)		23%				
Lane Group Flow (vph)	252	115	1686	0	213	904
Turn Type	Prot	pt+ov	NA		Prot	NA
Protected Phases	4	1 4	2		1	6
Permitted Phases						
Detector Phase	4	1 4	2		1	6
Switch Phase						
Minimum Initial (s)	6.0		10.0		5.0	10.0
Minimum Split (s)	46.0		38.0		12.0	46.0
Total Split (s)	44.0		60.0		36.0	96.0
Total Split (%)	31.4%		42.9%		25.7%	68.6%
Maximum Green (s)	37.0		53.0		29.0	89.0
Yellow Time (s)	4.5		4.5		4.5	4.5
All-Red Time (s)	2.5		2.5		2.5	2.5
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	7.0		7.0		7.0	7.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Recall Mode	None		C-Max		None	C-Max
Walk Time (s)	7.0		7.0			
Flash Don't Walk (s)	32.0		24.0			
Pedestrian Calls (#/hr)	5		5			
Act Effct Green (s)	19.0	55.0	71.0		29.0	107.0
Actuated g/C Ratio	0.14	0.39	0.51		0.21	0.76
v/c Ratio	0.55	0.21	0.69		0.60	0.24
Control Delay (s/veh)	57.0	26.2	29.1		48.6	1.1
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay (s/veh)	57.0	26.2	29.1		48.6	1.1
LOS	E	C	C		D	A
Approach Delay (s/veh)	47.4		29.1			10.2
Approach LOS	D		C			B

Lanes, Volumes, Timings
 19: Veterans Pkwy & Ireland Grove Rd

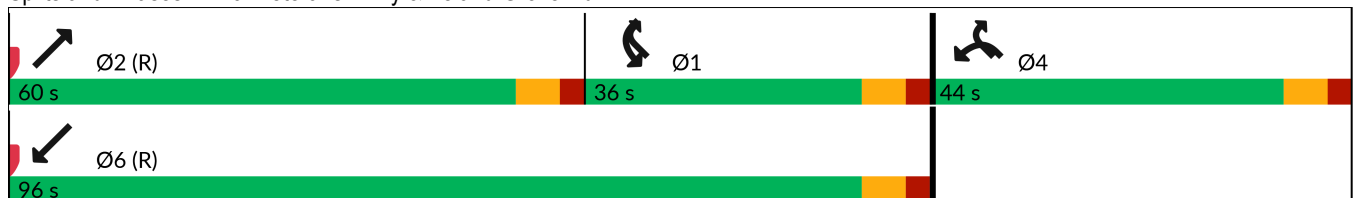


Lane Group	NWL	NWR	NET	NER	SWL	SWT
90th %ile Green (s)	37.0		53.0		29.0	89.0
90th %ile Term Code	Ped		Coord		Max	Coord
70th %ile Green (s)	17.4		72.6		29.0	108.6
70th %ile Term Code	Gap		Coord		Hold	Coord
50th %ile Green (s)	15.6		74.4		29.0	110.4
50th %ile Term Code	Gap		Coord		Hold	Coord
30th %ile Green (s)	13.8		76.2		29.0	112.2
30th %ile Term Code	Gap		Coord		Hold	Coord
10th %ile Green (s)	11.2		78.8		29.0	114.8
10th %ile Term Code	Gap		Coord		Hold	Coord
Queue Length 50th (ft)	109	74	390		196	15
Queue Length 95th (ft)	129	95	#608		282	28
Internal Link Dist (ft)	405		1479			1233
Turn Bay Length (ft)					340	
Base Capacity (vph)	876	728	2427		357	3720
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.29	0.16	0.69		0.60	0.24



























Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 109 (78%), Referenced to phase 2:NET and 6:SWT, Start of 1st Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.69
 Intersection Signal Delay (s/veh): 24.6 Intersection LOS: C
 Intersection Capacity Utilization 67.1% ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 19: Veterans Pkwy & Ireland Grove Rd



Lanes, Volumes, Timings
2: Veterans Pkwy & Shepard Rd

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				 				  			  	
Traffic Volume (vph)	15	15	55	345	15	350	45	1190	420	300	880	25
Future Volume (vph)	15	15	55	345	15	350	45	1190	420	300	880	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		180	250		0	250		450	455		260
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	140			135			185			185		
Satd. Flow (prot)	1745	1593	0	3351	1528	0	1745	4916	1546	1728	4946	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1745	1593	0	3351	1528	0	1745	4916	1546	1728	4946	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		57			361				433			3
Link Speed (mph)		30			40			45				45
Link Distance (ft)		462			1492			2523				3295
Travel Time (s)		10.5			25.4			38.2				49.9
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	0%	2%	1%	0%	3%	0%	2%	1%	1%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	72	0	356	376	0	46	1227	433	309	933	0
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases									2			
Detector Phase	7	4		3	8		5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	15.0	5.0	5.0	15.0	
Minimum Split (s)	12.0	49.0		12.0	46.0		12.0	35.0	12.0	12.0	35.0	
Total Split (s)	12.0	44.0		24.0	56.0		13.0	40.0	24.0	32.0	59.0	
Total Split (%)	8.6%	31.4%		17.1%	40.0%		9.3%	28.6%	17.1%	22.9%	42.1%	
Maximum Green (s)	5.0	37.0		17.0	49.0		6.0	33.0	17.0	25.0	52.0	
Yellow Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5	2.5	2.5	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0		2.0	3.0		2.0	4.5	2.0	2.0	4.5	
Recall Mode	None	None		None	None		None	C-Max	None	None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		35.0			32.0			21.0			21.0	
Pedestrian Calls (#/hr)		5			5			5			5	
Act Effct Green (s)	5.0	13.4		16.6	29.4		5.8	54.0	77.6	30.8	81.4	
Actuated g/C Ratio	0.04	0.10		0.12	0.21		0.04	0.39	0.55	0.22	0.58	
v/c Ratio	0.24	0.35		0.90	0.62		0.64	0.65	0.41	0.82	0.32	
Control Delay (s/veh)	75.2	21.8		86.1	9.5		73.2	23.6	5.3	69.2	18.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	75.2	21.8		86.1	9.5		73.2	23.6	5.3	69.2	18.6	
LOS	E	C		F	A		E	C	A	E	B	
Approach Delay (s/veh)		31.0			46.8			20.3			31.2	
Approach LOS		C			D			C			C	

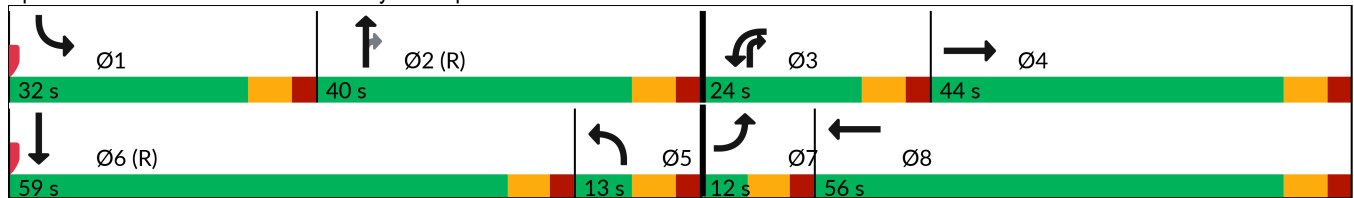
Lanes, Volumes, Timings
2: Veterans Pkwy & Shepard Rd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
90th %ile Green (s)	5.0	37.0		17.0	49.0		6.0	33.0	17.0	25.0	52.0	
90th %ile Term Code	Max	Ped		Max	Hold		Max	Coord	Max	Max	Coord	
70th %ile Green (s)	5.0	8.9		17.0	20.9		6.0	51.6	17.0	34.5	80.1	
70th %ile Term Code	Max	Gap		Max	Hold		Max	Coord	Max	Gap	Coord	
50th %ile Green (s)	0.0	7.0		17.0	31.0		6.0	54.9	17.0	33.1	82.0	
50th %ile Term Code	Skip	Min		Max	Hold		Max	Coord	Max	Gap	Coord	
30th %ile Green (s)	0.0	7.0		17.0	31.0		6.0	56.2	17.0	31.8	82.0	
30th %ile Term Code	Skip	Min		Max	Hold		Max	Coord	Max	Gap	Coord	
10th %ile Green (s)	0.0	0.0		15.1	15.1		0.0	74.4	15.1	29.5	110.9	
10th %ile Term Code	Skip	Skip		Gap	Hold		Skip	Coord	Gap	Gap	Coord	
Queue Length 50th (ft)	14	13		167	11		44	310	34	264	151	
Queue Length 95th (ft)	39	51		#252	85		m55	#561	m307	#483	283	
Internal Link Dist (ft)		382			1412			2443			3215	
Turn Bay Length (ft)	160			250			250		450	455		
Base Capacity (vph)	62	462		406	769		74	1896	1053	379	2877	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.24	0.16		0.88	0.49		0.62	0.65	0.41	0.82	0.32	































Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 135 (96%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 140
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay (s/veh): 29.3 Intersection LOS: C
 Intersection Capacity Utilization 79.6% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Veterans Pkwy & Shepard Rd



Lanes, Volumes, Timings
3: Veterans Pkwy & Fort Jesse Rd

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 		 	  		  	 	
Traffic Volume (vph)	185	440	325	155	445	120	505	1350	170	145	935	200
Future Volume (vph)	185	440	325	155	445	120	505	1350	170	145	935	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	110		225	175		200	245		255	345		575
Storage Lanes	2		0	2		0	2		0	1		0
Taper Length (ft)	190			160			250			205		
Satd. Flow (prot)	3319	3266	0	3385	3357	0	3385	4843	0	1694	4844	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3319	3266	0	3385	3357	0	3385	4843	0	1694	4844	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		130			23			18			32	
Link Speed (mph)		35			30			45			45	
Link Distance (ft)		2782			760			1379			2523	
Travel Time (s)		54.2			17.3			20.9			38.2	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	0%	0%	0%	0%	3%	0%	2%	0%	3%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	193	797	0	161	589	0	526	1583	0	151	1182	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	15.0		5.0	15.0	
Minimum Split (s)	12.0	46.0		12.0	46.0		12.0	38.0		12.0	38.0	
Total Split (s)	19.0	44.0		16.0	41.0		38.0	57.0		23.0	42.0	
Total Split (%)	13.6%	31.4%		11.4%	29.3%		27.1%	40.7%		16.4%	30.0%	
Maximum Green (s)	12.0	37.0		9.0	34.0		31.0	50.0		16.0	35.0	
Yellow Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lead		Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0		2.0	3.0		3.0	5.5		2.0	5.5	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		32.0			32.0			24.0			24.0	
Pedestrian Calls (#/hr)		5			5			5			5	
Act Effct Green (s)	11.1	34.4		8.8	32.0		26.5	52.8		16.0	42.3	
Actuated g/C Ratio	0.08	0.25		0.06	0.23		0.19	0.38		0.11	0.30	
v/c Ratio	0.73	0.89		0.76	0.75		0.82	0.86		0.78	0.79	
Control Delay (s/veh)	79.6	54.8		86.8	54.7		51.4	18.0		83.4	45.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	79.6	54.8		86.8	54.7		51.4	18.0		83.4	45.5	
LOS	E	D		F	D		D	B		F	D	
Approach Delay (s/veh)		59.6			61.6			26.4			49.8	
Approach LOS		E			E			C			D	

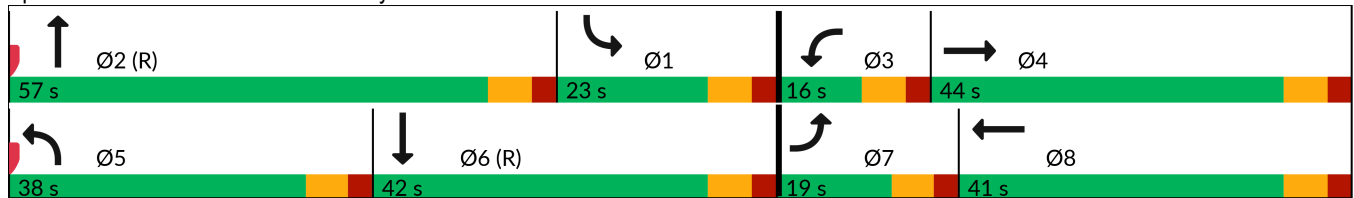
Lanes, Volumes, Timings
 3: Veterans Pkwy & Fort Jesse Rd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
90th %ile Green (s)	12.0	37.0		9.0	34.0		31.0	50.0		16.0	35.0	
90th %ile Term Code	Max	Ped		Max	Ped		Max	Coord		Max	Coord	
70th %ile Green (s)	12.0	37.0		9.0	34.0		29.3	50.0		16.0	36.7	
70th %ile Term Code	Max	Max		Max	Hold		Gap	Coord		Max	Coord	
50th %ile Green (s)	12.0	36.5		9.0	33.5		26.9	50.5		16.0	39.6	
50th %ile Term Code	Max	Gap		Max	Hold		Gap	Coord		Max	Coord	
30th %ile Green (s)	10.9	33.4		9.0	31.5		24.4	53.6		16.0	45.2	
30th %ile Term Code	Gap	Gap		Max	Hold		Gap	Coord		Hold	Coord	
10th %ile Green (s)	8.7	28.0		7.9	27.2		20.9	60.1		16.0	55.2	
10th %ile Term Code	Gap	Gap		Gap	Hold		Gap	Coord		Hold	Coord	
Queue Length 50th (ft)	89	310		75	251		185	411		139	284	
Queue Length 95th (ft)	132	392		#127	318		m167	131		m#227	#494	
Internal Link Dist (ft)		2702			680			1299			2443	
Turn Bay Length (ft)	110			175			245			345		
Base Capacity (vph)	284	958		217	832		749	1839		193	1487	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.68	0.83		0.74	0.71		0.70	0.86		0.78	0.79	



























Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 97 (69%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 120
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay (s/veh): 43.8 Intersection LOS: D
 Intersection Capacity Utilization 88.2% ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Veterans Pkwy & Fort Jesse Rd



Lanes, Volumes, Timings
4: Veterans Pkwy & Parkway Plaza

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				 				  			 	
Traffic Volume (vph)	75	100	90	335	75	245	55	1705	380	150	1230	35
Future Volume (vph)	75	100	90	335	75	245	55	1705	380	150	1230	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	90		130	0		0	515		545	505		530
Storage Lanes	1		0	2		0	1		1	1		0
Taper Length (ft)	105			25			235			205		
Satd. Flow (prot)	1728	1659	0	3385	1607	0	1678	4964	1561	1745	4942	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1728	1659	0	3375	1607	0	1678	4964	1526	1744	4942	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		30			113				400			3
Link Speed (mph)		30			30			45				45
Link Distance (ft)		1184			383			1295				1379
Travel Time (s)		26.9			8.7			19.6				20.9
Confl. Peds. (#/hr)			4	4					1	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	4%	0%	0%	5%	0%	4%	1%	0%	0%	1%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	79	200	0	353	337	0	58	1795	400	158	1332	0
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases									2			
Detector Phase	7	4		3	8		5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	15.0	5.0	5.0	15.0	
Minimum Split (s)	12.0	49.0		12.0	46.0		12.0	32.0	12.0	12.0	32.0	
Total Split (s)	24.0	37.0		30.0	43.0		16.0	52.0	30.0	21.0	57.0	
Total Split (%)	17.1%	26.4%		21.4%	30.7%		11.4%	37.1%	21.4%	15.0%	40.7%	
Maximum Green (s)	17.0	30.0		23.0	36.0		9.0	45.0	23.0	14.0	50.0	
Yellow Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5	2.5	2.5	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0		2.0	3.0		2.0	5.5	2.0	2.0	5.5	
Recall Mode	None	None		None	None		None	C-Max	None	None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		35.0			32.0			18.0			18.0	
Pedestrian Calls (#/hr)		5			5			5			5	
Act Effct Green (s)	10.8	20.4		18.7	28.3		8.2	56.1	74.8	16.8	67.1	
Actuated g/C Ratio	0.08	0.15		0.13	0.20		0.06	0.40	0.53	0.12	0.48	
v/c Ratio	0.59	0.75		0.78	0.81		0.59	0.90	0.40	0.76	0.56	
Control Delay (s/veh)	79.9	65.1		70.8	50.2		56.6	27.3	1.1	58.6	23.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	79.9	65.1		70.8	50.2		56.6	27.3	1.1	58.6	23.9	
LOS	E	E		E	D		E	C	A	E	C	
Approach Delay (s/veh)		69.3			60.7			23.4			27.5	

Lanes, Volumes, Timings
 4: Veterans Pkwy & Parkway Plaza

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	E			E			C					
90th %ile Green (s)	15.4	30.0		23.0	37.6		9.0	45.0	23.0	14.0	50.0	
90th %ile Term Code	Gap	Ped		Max	Ped		Max	Coord	Max	Max	Coord	
70th %ile Green (s)	12.7	23.1		20.9	31.3		9.0	47.2	20.9	20.8	59.0	
70th %ile Term Code	Gap	Gap		Gap	Hold		Max	Coord	Gap	Gap	Coord	
50th %ile Green (s)	10.8	19.9		18.9	28.0		9.0	54.1	18.9	19.1	64.2	
50th %ile Term Code	Gap	Gap		Gap	Hold		Max	Coord	Gap	Gap	Coord	
30th %ile Green (s)	8.9	16.7		16.9	24.7		9.0	61.4	16.9	17.0	69.4	
30th %ile Term Code	Gap	Gap		Gap	Hold		Hold	Coord	Gap	Gap	Coord	
10th %ile Green (s)	6.1	12.1		13.9	19.9		0.0	72.8	13.9	13.2	93.0	
10th %ile Term Code	Gap	Gap		Gap	Hold		Skip	Coord	Gap	Gap	Coord	
Queue Length 50th (ft)	71	152		162	203		46	194	8	144	377	
Queue Length 95th (ft)	124	222		210	297		m57	#768	m6	m#214	467	
Internal Link Dist (ft)		1104			303			1215			1299	
Turn Bay Length (ft)	90						515		545	505		
Base Capacity (vph)	209	379		556	500		107	1989	1041	211	2370	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.38	0.53		0.63	0.67		0.54	0.90	0.38	0.75	0.56	
























Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 56 (40%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 145
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay (s/veh): 32.9 Intersection LOS: C
 Intersection Capacity Utilization 88.1% ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Veterans Pkwy & Parkway Plaza



Lanes, Volumes, Timings
5: Veterans Pkwy & E College Ave

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	255	680	385	260	470	125	395	1760	280	145	1300	210
Future Volume (vph)	255	680	385	260	470	125	395	1760	280	145	1300	210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	140		315	110		135	415		455	415		505
Storage Lanes	2		1	2		0	2		1	2		1
Taper Length (ft)	190			230			230			225		
Satd. Flow (prot)	3385	3490	1561	3385	3378	0	3385	4964	1546	3385	4964	1561
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3385	3490	1561	3385	3378	0	3385	4964	1546	3385	4964	1561
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			140		21				86			86
Link Speed (mph)		30			35			45			45	
Link Distance (ft)		2651			778			1447			1295	
Travel Time (s)		60.3			15.2			21.9			19.6	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	1%	0%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	271	723	410	277	633	0	420	1872	298	154	1383	223
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2	3	1	6	7
Permitted Phases			4						2			6
Detector Phase	7	4	5	3	8		5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	9.0	5.0	5.0	9.0		5.0	10.0	5.0	5.0	10.0	5.0
Minimum Split (s)	12.0	49.0	12.0	12.0	49.0		12.0	41.0	12.0	12.0	41.0	12.0
Total Split (s)	29.0	40.0	35.0	24.0	35.0		35.0	62.0	24.0	14.0	41.0	29.0
Total Split (%)	20.7%	28.6%	25.0%	17.1%	25.0%		25.0%	44.3%	17.1%	10.0%	29.3%	20.7%
Maximum Green (s)	22.0	33.0	28.0	17.0	28.0		28.0	55.0	17.0	7.0	34.0	22.0
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lead	Lead	Lag	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0		2.0	3.0	2.0	2.0	3.0	2.0
Recall Mode	None	None	None	None	None		None	C-Max	None	None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		35.0			35.0			27.0			27.0	
Pedestrian Calls (#/hr)		5			5			5			5	
Act Effct Green (s)	15.6	32.5	61.3	15.0	31.9		21.8	57.5	72.5	7.0	42.7	65.2
Actuated g/C Ratio	0.11	0.23	0.44	0.11	0.23		0.16	0.41	0.52	0.05	0.31	0.47
v/c Ratio	0.72	0.89	0.54	0.76	0.81		0.80	0.92	0.35	0.91	0.91	0.29
Control Delay (s/veh)	71.1	66.5	20.4	74.6	58.1		92.3	39.6	4.5	96.4	44.3	15.5
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	71.1	66.5	20.4	74.6	58.1		92.3	39.6	4.5	96.4	44.3	15.5
LOS	E	E	C	E	E		F	D	A	F	D	B
Approach Delay (s/veh)		53.9			63.2			44.1			45.2	
Approach LOS		D			E			D			D	

Lanes, Volumes, Timings
5: Veterans Pkwy & E College Ave

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
90th %ile Green (s)	19.9	33.0	27.8	17.0	30.1		27.8	55.0	17.0	7.0	34.2	19.9
90th %ile Term Code	Gap	Ped	Gap	Max	Ped		Gap	Coord	Max	Max	Coord	Gap
70th %ile Green (s)	17.3	33.0	23.9	17.0	32.7		23.9	55.0	17.0	7.0	38.1	17.3
70th %ile Term Code	Gap	Max	Gap	Max	Max		Gap	Coord	Max	Max	Coord	Gap
50th %ile Green (s)	15.6	34.2	21.7	15.8	34.4		21.7	55.0	15.8	7.0	40.3	15.6
50th %ile Term Code	Gap	Max	Gap	Gap	Hold		Gap	Coord	Gap	Max	Coord	Gap
30th %ile Green (s)	13.8	33.4	19.5	14.0	33.6		19.5	57.6	14.0	7.0	45.1	13.8
30th %ile Term Code	Gap	Gap	Gap	Gap	Hold		Gap	Coord	Gap	Max	Coord	Gap
10th %ile Green (s)	11.2	28.7	16.3	11.4	28.9		16.3	64.9	11.4	7.0	55.6	11.2
10th %ile Term Code	Gap	Gap	Gap	Gap	Hold		Gap	Coord	Gap	Max	Coord	Gap
Queue Length 50th (ft)	124	332	173	127	273		201	376	75	75	477	137
Queue Length 95th (ft)	168	#438	254	176	#377		m239	#698	m105	#146	#645	126
Internal Link Dist (ft)		2571			698			1367			1215	
Turn Bay Length (ft)	140		315	110			415		455	415		505
Base Capacity (vph)	531	830	824	411	786		677	2039	862	169	1512	840
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.87	0.50	0.67	0.81		0.62	0.92	0.35	0.91	0.91	0.27

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 56 (40%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 135
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.92
 Intersection Signal Delay (s/veh): 49.1 Intersection LOS: D
 Intersection Capacity Utilization 87.7% ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Veterans Pkwy & E College Ave



Lanes, Volumes, Timings
6: Veterans Pkwy & Von Maur Dr/Jumer Dr

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	90	290	200	100	55	320	2290	245	40	1805	100
Future Volume (vph)	90	90	290	200	100	55	320	2290	245	40	1805	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	90		120	145		225	555		695	530		590
Storage Lanes	1		0	1		0	2		1	1		1
Taper Length (ft)	80			115			220			250		
Satd. Flow (prot)	1745	3054	0	3385	1684	0	3385	4964	1561	1745	4964	1561
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1745	3054	0	3385	1684	0	3385	4964	1561	1745	4964	1561
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		158			18				250			140
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		275			1066			1370			1447	
Travel Time (s)		6.3			24.2			20.8			21.9	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	2%	1%	0%	4%	2%	0%	1%	0%	0%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	92	388	0	204	158	0	327	2337	250	41	1842	102
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases									2			6
Detector Phase	7	4		3	8		5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	10.0	5.0	5.0	10.0	5.0
Minimum Split (s)	13.0	49.0		13.0	49.0		13.0	35.0	13.0	12.0	35.0	13.0
Total Split (s)	15.0	29.0		24.0	38.0		17.0	75.0	24.0	12.0	70.0	15.0
Total Split (%)	10.7%	20.7%		17.1%	27.1%		12.1%	53.6%	17.1%	8.6%	50.0%	10.7%
Maximum Green (s)	8.0	22.0		17.0	31.0		10.0	68.0	17.0	5.0	63.0	8.0
Yellow Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lag	Lag		Lead	Lead		Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	None	None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		35.0			35.0			21.0			21.0	
Pedestrian Calls (#/hr)		5			5			5			5	
Act Effct Green (s)	12.4	17.3		13.6	18.5		18.1	78.5	93.5	5.0	63.0	75.4
Actuated g/C Ratio	0.09	0.12		0.10	0.13		0.13	0.56	0.67	0.04	0.45	0.54
v/c Ratio	0.60	0.90dr		0.62	0.67		0.75	0.84	0.22	0.66	0.82	0.11
Control Delay (s/veh)	76.8	44.0		68.8	63.3		48.4	34.0	4.1	80.7	26.2	1.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	76.8	44.0		68.8	63.3		48.4	34.0	4.1	80.7	26.2	1.6
LOS	E	D		E	E		D	C	A	F	C	A
Approach Delay (s/veh)		50.3			66.4			33.1			26.1	
Approach LOS		D			E			C			C	

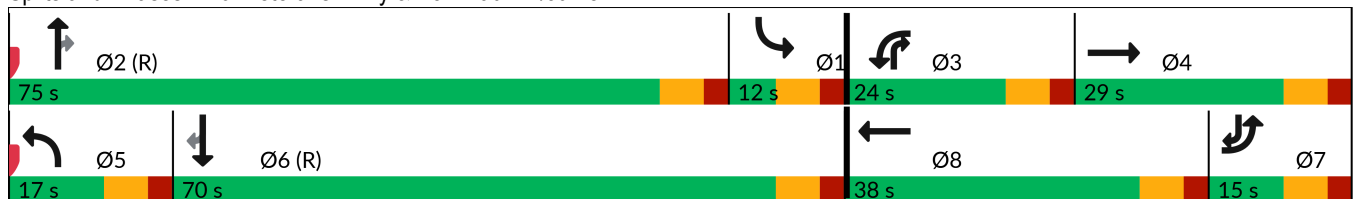
Lanes, Volumes, Timings
 6: Veterans Pkwy & Von Maur Dr/Jumer Dr

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
90th %ile Green (s)	8.0	22.0		17.0	31.0		10.0	68.0	17.0	5.0	63.0	8.0
90th %ile Term Code	Max	Ped		Max	Ped		Max	Coord	Max	Max	Coord	Max
70th %ile Green (s)	15.8	20.3		15.3	19.8		13.4	71.4	15.3	5.0	63.0	15.8
70th %ile Term Code	Gap	Hold		Gap	Gap		Max	Coord	Gap	Max	Coord	Gap
50th %ile Green (s)	14.6	18.0		13.7	17.1		17.3	75.3	13.7	5.0	63.0	14.6
50th %ile Term Code	Gap	Hold		Gap	Gap		Max	Coord	Gap	Max	Coord	Gap
30th %ile Green (s)	13.3	15.4		12.2	14.3		21.4	79.4	12.2	5.0	63.0	13.3
30th %ile Term Code	Gap	Hold		Gap	Gap		Max	Coord	Gap	Max	Coord	Gap
10th %ile Green (s)	10.5	10.7		10.0	10.2		28.3	98.3	10.0	0.0	63.0	10.5
10th %ile Term Code	Gap	Hold		Gap	Gap		Max	Coord	Gap	Skip	Coord	Gap
Queue Length 50th (ft)	81	107		93	125		140	730	37	34	260	1
Queue Length 95th (ft)	#199	161		133	181		m#216	m804	m49	m45	352	m4
Internal Link Dist (ft)		195			986			1290			1367	
Turn Bay Length (ft)	90			145			555		695	530		590
Base Capacity (vph)	154	613		411	386		437	2782	1157	62	2233	905
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.63		0.50	0.41		0.75	0.84	0.22	0.66	0.82	0.11































Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 60 (43%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay (s/veh): 34.2 Intersection LOS: C
 Intersection Capacity Utilization 89.3% ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.
 dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 6: Veterans Pkwy & Von Maur Dr/Jumer Dr



Lanes, Volumes, Timings
 7: Veterans Pkwy & E Vernon Ave/General Electric Rd

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 		 	  		 		
Traffic Volume (vph)	345	460	490	200	355	230	360	2280	200	170	1820	305
Future Volume (vph)	345	460	490	200	355	230	360	2280	200	170	1820	305
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	235		140	180		160	530		590	400		685
Storage Lanes	1		1	2		1	2		1	2		1
Taper Length (ft)	80			150			230			210		
Satd. Flow (prot)	3385	3490	1546	3385	3490	1531	3385	4964	1546	3351	4964	1561
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3385	3490	1546	3385	3490	1531	3385	4964	1546	3351	4964	1561
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			140			140			140			140
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		379			486			2185			1370	
Travel Time (s)		8.6			11.0			33.1			20.8	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	1%	0%	0%	2%	0%	1%	1%	1%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	359	479	510	208	370	240	375	2375	208	177	1896	318
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0	5.0	5.0	10.0	5.0	5.0	10.0	5.0
Minimum Split (s)	12.0	49.0	12.0	12.0	49.0	12.0	12.0	41.0	12.0	12.0	41.0	12.0
Total Split (s)	16.0	38.0	27.0	15.0	37.0	13.0	27.0	74.0	15.0	13.0	60.0	16.0
Total Split (%)	11.4%	27.1%	19.3%	10.7%	26.4%	9.3%	19.3%	52.9%	10.7%	9.3%	42.9%	11.4%
Maximum Green (s)	9.0	31.0	20.0	8.0	30.0	6.0	20.0	67.0	8.0	6.0	53.0	9.0
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lead	Lead	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	2.0	2.5	1.0	2.0	2.0	2.5	4.5	1.0	2.0	4.5	1.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		35.0			35.0			27.0			27.0	
Pedestrian Calls (#/hr)		5			5			5			5	
Act Effct Green (s)	18.6	31.0	51.0	8.0	20.4	26.4	20.0	67.0	82.0	6.0	53.0	78.6
Actuated g/C Ratio	0.13	0.22	0.36	0.06	0.15	0.19	0.14	0.48	0.59	0.04	0.38	0.56
v/c Ratio	0.80	0.62	0.78	1.08	0.73	0.60	0.78	1.00	0.22	1.24	1.01	0.34
Control Delay (s/veh)	72.1	53.3	30.0	147.0	65.3	18.8	54.2	38.6	2.3	195.1	45.3	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	72.1	53.3	30.0	147.0	65.3	18.8	54.2	38.6	2.3	195.1	45.3	1.9
LOS	E	D	C	F	E	B	D	D	A	F	D	A
Approach Delay (s/veh)		49.5			72.4			38.1			50.6	
Approach LOS		D			E			D			D	

Lanes, Volumes, Timings

7: Veterans Pkwy & E Vernon Ave/General Electric Rd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
90th %ile Green (s)	9.0	31.0	20.0	8.0	30.0	6.0	20.0	67.0	8.0	6.0	53.0	9.0
90th %ile Term Code	Max	Ped	Max	Max	Ped	Max	Max	Coord	Max	Max	Coord	Max
70th %ile Green (s)	17.7	31.0	20.0	8.0	21.3	6.0	20.0	67.0	8.0	6.0	53.0	17.7
70th %ile Term Code	Max	Hold	Max	Max	Gap	Max	Max	Coord	Max	Max	Coord	Max
50th %ile Green (s)	19.8	31.0	20.0	8.0	19.2	6.0	20.0	67.0	8.0	6.0	53.0	19.8
50th %ile Term Code	Max	Hold	Max	Max	Gap	Max	Max	Coord	Max	Max	Coord	Max
30th %ile Green (s)	21.8	31.0	20.0	8.0	17.2	6.0	20.0	67.0	8.0	6.0	53.0	21.8
30th %ile Term Code	Max	Hold	Max	Max	Gap	Max	Max	Coord	Max	Max	Coord	Max
10th %ile Green (s)	24.8	31.0	20.0	8.0	14.2	6.0	20.0	67.0	8.0	6.0	53.0	24.8
10th %ile Term Code	Max	Hold	Hold	Max	Gap	Max	Hold	Coord	Max	Max	Coord	Max
Queue Length 50th (ft)	164	208	225	~108	173	56	158	~535	9	~105	~643	6
Queue Length 95th (ft)	#346	270	339	#193	210	120	m170	m#686	m10	m#147	#758	m16
Internal Link Dist (ft)		299			406			2105			1290	
Turn Bay Length (ft)	235		140	180		160	530		590	400		685
Base Capacity (vph)	450	772	652	193	747	402	483	2375	963	143	1879	937
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.62	0.78	1.08	0.50	0.60	0.78	1.00	0.22	1.24	1.01	0.34

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 120 (86%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.24

Intersection Signal Delay (s/veh): 47.8 Intersection LOS: D

Intersection Capacity Utilization 91.9% ICU Level of Service F

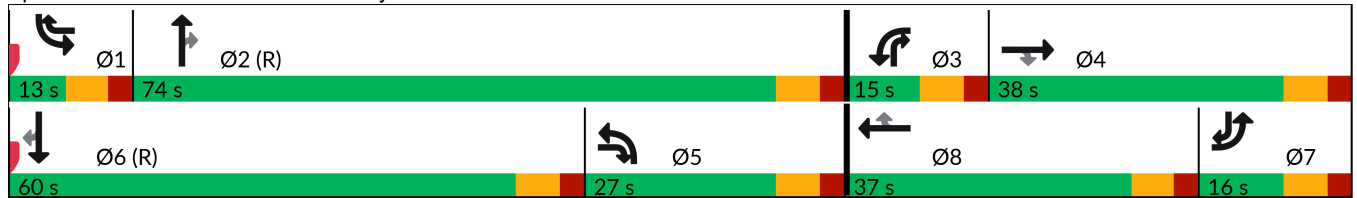
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.



















95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Veterans Pkwy & E Vernon Ave/General Electric Rd



Lanes, Volumes, Timings
8: Veterans Pkwy & Clearwater Ave

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	 		  		 	  
Traffic Volume (vph)	270	450	2390	360	410	2100
Future Volume (vph)	270	450	2390	360	410	2100
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	335		560	380	
Storage Lanes	2	1		1	2	
Taper Length (ft)	25				240	
Satd. Flow (prot)	3351	1546	4964	1561	3385	4964
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3335	1546	4964	1541	3385	4964
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		1		13		
Link Speed (mph)	30		45			45
Link Distance (ft)	1078		2570			2185
Travel Time (s)	24.5		38.9			33.1
Confl. Peds. (#/hr)	5			1	1	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	1%	1%	0%	0%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	287	479	2543	383	436	2234
Turn Type	Prot	pt+ov	NA	pm+ov	Prot	NA
Protected Phases	3	1 3	2	3	1	6
Permitted Phases		3		2		
Detector Phase	3	1 3	2	3	1	6
Switch Phase						
Minimum Initial (s)	8.0		10.0	8.0	6.0	10.0
Minimum Split (s)	49.0		35.0	49.0	13.0	35.0
Total Split (s)	37.0		77.0	37.0	26.0	103.0
Total Split (%)	26.4%		55.0%	26.4%	18.6%	73.6%
Maximum Green (s)	30.0		70.0	30.0	19.0	96.0
Yellow Time (s)	4.5		4.5	4.5	4.5	4.5
All-Red Time (s)	2.5		2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0		7.0	7.0	7.0	7.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	4.0		3.0	4.0	2.0	3.0
Recall Mode	None		C-Max	None	None	C-Max
Walk Time (s)	7.0		7.0	7.0		
Flash Don't Walk (s)	35.0		21.0	35.0		
Pedestrian Calls (#/hr)	5		5	5		
Act Effct Green (s)	27.3	53.3	72.7	100.0	19.0	98.7
Actuated g/C Ratio	0.20	0.38	0.52	0.71	0.14	0.71
v/c Ratio	0.44	0.81	0.99	0.35	0.95	0.64
Control Delay (s/veh)	51.3	50.7	36.2	3.6	60.6	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	51.3	50.7	36.2	3.6	60.6	5.0
LOS	D	D	D	A	E	A
Approach Delay (s/veh)	50.9		32.0			14.1

Lanes, Volumes, Timings
 8: Veterans Pkwy & Clearwater Ave



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Approach LOS	D		C		B	
90th %ile Green (s)	30.0		70.0	30.0	19.0	96.0
90th %ile Term Code	Ped		Coord	Ped	Max	Coord
70th %ile Green (s)	30.0		70.0	30.0	19.0	96.0
70th %ile Term Code	Max		Coord	Max	Max	Coord
50th %ile Green (s)	30.0		70.0	30.0	19.0	96.0
50th %ile Term Code	Max		Coord	Max	Max	Coord
30th %ile Green (s)	27.1		72.9	27.1	19.0	98.9
30th %ile Term Code	Gap		Coord	Gap	Max	Coord
10th %ile Green (s)	19.5		80.5	19.5	19.0	106.5
10th %ile Term Code	Gap		Coord	Gap	Max	Coord
Queue Length 50th (ft)	117	375	~897	45	212	163
Queue Length 95th (ft)	161	524	#993	101	m224	m143
Internal Link Dist (ft)	998		2490		2105	
Turn Bay Length (ft)	335		560		380	
Base Capacity (vph)	718	619	2577	1130	459	3498
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.77	0.99	0.34	0.95	0.64

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 123 (88%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.99
 Intersection Signal Delay (s/veh): 26.7 Intersection LOS: C
 Intersection Capacity Utilization 85.7% ICU Level of Service E
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: Veterans Pkwy & Clearwater Ave



Lanes, Volumes, Timings
 9: Veterans Pkwy & Empire Street North Junction



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↶↶			↑↑↑	↑↑↑↑	↷
Traffic Volume (vph)	330	0	0	2420	2025	345
Future Volume (vph)	330	0	0	2420	2025	345
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0			480
Storage Lanes	2	0	0			1
Taper Length (ft)	25		25			
Satd. Flow (prot)	3385	0	0	4964	7365	1561
Flt Permitted	0.950					
Satd. Flow (perm)	3385	0	0	4964	7365	1561
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						
Link Speed (mph)	35			45	45	
Link Distance (ft)	383			530	2570	
Travel Time (s)	7.5			8.0	38.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	1%	1%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	344	0	0	2521	2109	359
Turn Type	Prot			NA	NA	pm+ov
Protected Phases	3			2	6	3
Permitted Phases						6
Detector Phase	3			2	6	3
Switch Phase						
Minimum Initial (s)	8.0			15.0	15.0	8.0
Minimum Split (s)	20.0			22.0	22.0	20.0
Total Split (s)	32.0			108.0	108.0	32.0
Total Split (%)	22.9%			77.1%	77.1%	22.9%
Maximum Green (s)	25.0			101.0	101.0	25.0
Yellow Time (s)	4.5			4.5	4.5	4.5
All-Red Time (s)	2.5			2.5	2.5	2.5
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	7.0			7.0	7.0	7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Recall Mode	None			C-Max	C-Max	None
Act Effct Green (s)	19.8			106.2	106.2	140.0
Actuated g/C Ratio	0.14			0.76	0.76	1.00
v/c Ratio	0.72			0.67	0.38	0.23
Control Delay (s/veh)	45.5			3.9	2.3	0.3
Queue Delay	0.0			0.0	0.0	0.0
Total Delay (s/veh)	45.5			4.0	2.3	0.3
LOS	D			A	A	A
Approach Delay (s/veh)	45.5			4.0	2.0	
Approach LOS	D			A	A	
90th %ile Green (s)	25.0			101.0	101.0	25.0
90th %ile Term Code	Max			Coord	Coord	Max
70th %ile Green (s)	22.3			103.7	103.7	22.3

Lanes, Volumes, Timings
 9: Veterans Pkwy & Empire Street North Junction



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
70th %ile Term Code	Gap			Coord	Coord	Gap
50th %ile Green (s)	19.5			106.5	106.5	19.5
50th %ile Term Code	Gap			Coord	Coord	Gap
30th %ile Green (s)	17.5			108.5	108.5	17.5
30th %ile Term Code	Gap			Coord	Coord	Gap
10th %ile Green (s)	14.5			111.5	111.5	14.5
10th %ile Term Code	Gap			Coord	Coord	Gap
Queue Length 50th (ft)	172			96	31	0
Queue Length 95th (ft)	225			110	127	0
Internal Link Dist (ft)	303			450	2490	
Turn Bay Length (ft)						480
Base Capacity (vph)	604			3767	5588	1548
Starvation Cap Reductn	0			104	0	0
Spillback Cap Reductn	0			0	18	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.57			0.69	0.38	0.23

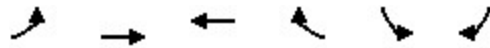
Intersection Summary

Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Offset:	34 (24%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.72
Intersection Signal Delay (s/veh):	5.7
Intersection LOS:	A
Intersection Capacity Utilization:	67.8%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 9: Veterans Pkwy & Empire Street North Junction



Lanes, Volumes, Timings
 10: E Empire St & Veterans Parkway West Junction



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔↔	↑↑↑	↑↑			↔↔
Traffic Volume (vph)	330	1025	855	0	0	345
Future Volume (vph)	330	1025	855	0	0	345
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	245			0	0	0
Storage Lanes	2			0	0	2
Taper Length (ft)	165				25	
Satd. Flow (prot)	3385	4964	3455	0	0	2748
Flt Permitted	0.950					
Satd. Flow (perm)	3385	4964	3455	0	0	2748
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)						186
Link Speed (mph)		35	35		35	
Link Distance (ft)		2754	530		355	
Travel Time (s)		53.6	10.3		6.9	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	1%	1%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	355	1102	919	0	0	371
Turn Type	Prot	NA	NA			Over
Protected Phases	7	2 7	2			7
Permitted Phases						
Detector Phase	7	2 7	2			7
Switch Phase						
Minimum Initial (s)	8.0		15.0			8.0
Minimum Split (s)	21.0		22.4			21.0
Total Split (s)	60.0		80.0			60.0
Total Split (%)	42.9%		57.1%			42.9%
Maximum Green (s)	53.0		73.0			53.0
Yellow Time (s)	4.5		4.5			4.5
All-Red Time (s)	2.5		2.5			2.5
Lost Time Adjust (s)	0.0		0.0			0.0
Total Lost Time (s)	7.0		7.0			7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0		2.0			2.0
Recall Mode	None		C-Max			None
Act Effct Green (s)	27.4	140.0	98.6			27.4
Actuated g/C Ratio	0.20	1.00	0.70			0.20
v/c Ratio	0.54	0.22	0.38			0.54
Control Delay (s/veh)	52.6	0.1	2.4			13.5
Queue Delay	0.0	0.0	0.5			0.0
Total Delay (s/veh)	52.6	0.1	2.9			13.5
LOS	D	A	A			B
Approach Delay (s/veh)		12.9	2.9		13.5	
Approach LOS		B	A		B	
90th %ile Green (s)	37.2		88.8			37.2
90th %ile Term Code	Gap		Coord			Gap
70th %ile Green (s)	31.1		94.9			31.1

Lanes, Volumes, Timings
 10: E Empire St & Veterans Parkway West Junction



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
70th %ile Term Code	Gap		Coord			Gap
50th %ile Green (s)	27.3		98.7			27.3
50th %ile Term Code	Gap		Coord			Gap
30th %ile Green (s)	23.6		102.4			23.6
30th %ile Term Code	Gap		Coord			Gap
10th %ile Green (s)	17.9		108.1			17.9
10th %ile Term Code	Gap		Coord			Gap
Queue Length 50th (ft)	151	0	2			60
Queue Length 95th (ft)	185	0	153			111
Internal Link Dist (ft)		2674	450		275	
Turn Bay Length (ft)	245					
Base Capacity (vph)	1281	4964	2432			1155
Starvation Cap Reductn	0	0	977			0
Spillback Cap Reductn	0	105	0			0
Storage Cap Reductn	0	0	0			0
Reduced v/c Ratio	0.28	0.23	0.63			0.32













Intersection Summary

Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Offset:	10 (7%), Referenced to phase 2:EBWB, Start of 1st Green
Natural Cycle:	45
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.54
Intersection Signal Delay (s/veh):	9.6
Intersection LOS:	A
Intersection Capacity Utilization:	47.4%
ICU Level of Service:	A
Analysis Period (min):	15

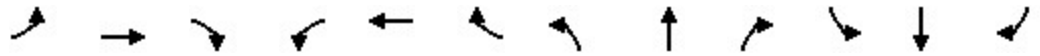
Splits and Phases: 10: E Empire St & Veterans Parkway West Junction



Lanes, Volumes, Timings
 11: Veterans Pkwy & E Empire St

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗	↘↘	↑↑↑		↘↘	↑↑↑	
Traffic Volume (vph)	0	805	285	0	615	400	240	2020	0	330	1695	0
Future Volume (vph)	0	805	285	0	615	400	240	2020	0	330	1695	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	3455	1531	0	3455	1531	3351	4964	0	3385	4964	0
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	3455	1531	0	3455	1531	3351	4964	0	3385	4964	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			86			86						
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		530			509			475			530	
Travel Time (s)		10.3			9.9			7.2			8.0	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	1%	2%	0%	1%	2%	1%	1%	0%	0%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	847	300	0	647	421	253	2126	0	347	1784	0
Turn Type		NA	pm+ov		NA	pm+ov	Prot	NA		Prot	NA	
Protected Phases		4	5		8	1	5	2		1	6	
Permitted Phases			4			8						
Detector Phase		4	5		8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)		15.0	5.0		15.0	5.0	5.0	15.0		5.0	15.0	
Minimum Split (s)		22.0	19.0		22.0	12.0	19.0	22.0		12.0	22.0	
Total Split (s)		46.0	23.0		46.0	24.0	23.0	70.0		24.0	71.0	
Total Split (%)		32.9%	16.4%		32.9%	17.1%	16.4%	50.0%		17.1%	50.7%	
Maximum Green (s)		39.0	16.0		39.0	17.0	16.0	63.0		17.0	64.0	
Yellow Time (s)		4.5	4.5		4.5	4.5	4.5	4.5		4.5	4.5	
All-Red Time (s)		2.5	2.5		2.5	2.5	2.5	2.5		2.5	2.5	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	
Lead/Lag			Lag			Lead	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode		None	None		None	None	None	C-Max		None	C-Max	
Act Effct Green (s)		37.8	60.8		37.8	61.5	16.0	64.5		16.8	65.2	
Actuated g/C Ratio		0.27	0.43		0.27	0.44	0.11	0.46		0.12	0.47	
v/c Ratio		0.91	0.42		0.69	0.58	0.66	0.93		0.86	0.77	
Control Delay (s/veh)		63.6	20.8		50.2	26.5	46.0	24.4		91.7	19.2	
Queue Delay		0.7	0.0		0.1	0.9	0.0	0.9		0.0	0.1	
Total Delay (s/veh)		64.4	20.8		50.3	27.3	46.0	25.3		91.7	19.3	
LOS		E	C		D	C	D	C		F	B	
Approach Delay (s/veh)		53.0			41.2			27.5			31.1	
Approach LOS		D			D			C			C	
90th %ile Green (s)		39.0	16.0		39.0	17.0	16.0	63.0		17.0	64.0	
90th %ile Term Code		Max	Max		Max	Max	Max	Coord		Max	Coord	
70th %ile Green (s)		39.0	16.0		39.0	17.0	16.0	63.0		17.0	64.0	
70th %ile Term Code		Max	Max		Hold	Max	Max	Coord		Max	Coord	
50th %ile Green (s)		39.0	16.0		39.0	17.0	16.0	63.0		17.0	64.0	
50th %ile Term Code		Max	Max		Hold	Max	Max	Coord		Max	Coord	

Lanes, Volumes, Timings
 11: Veterans Pkwy & E Empire St

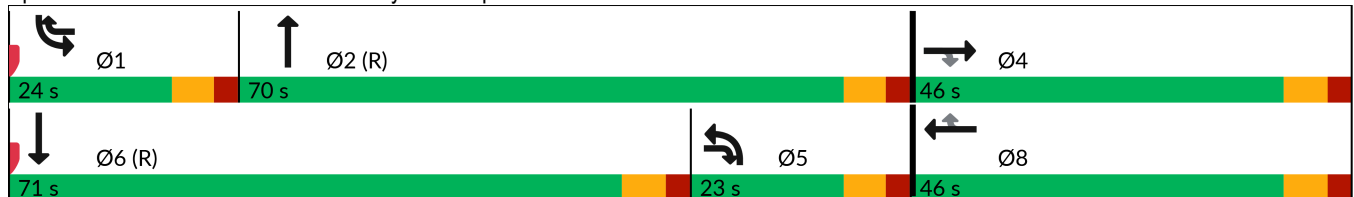


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
30th %ile Green (s)		38.4	16.0		38.4	17.6	16.0	63.0		17.6	64.6	
30th %ile Term Code		Gap	Hold		Hold	Max	Hold	Coord		Max	Coord	
10th %ile Green (s)		33.4	16.0		33.4	15.2	16.0	70.4		15.2	69.6	
10th %ile Term Code		Gap	Hold		Hold	Gap	Hold	Coord		Gap	Coord	
Queue Length 50th (ft)		390	129		276	223	125	750		172	290	
Queue Length 95th (ft)		#496	208		345	333	160	#178		#243	315	
Internal Link Dist (ft)		450			429			395			450	
Turn Bay Length (ft)												
Base Capacity (vph)		962	712		962	724	382	2286		414	2313	
Starvation Cap Reductn		19	0		0	109	0	0		0	36	
Spillback Cap Reductn		0	0		17	0	0	44		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.90	0.42		0.68	0.68	0.66	0.95		0.84	0.78	

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 40 (29%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.93
 Intersection Signal Delay (s/veh): 35.2 Intersection LOS: D
 Intersection Capacity Utilization 88.2% ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 11: Veterans Pkwy & E Empire St



















Lanes, Volumes, Timings

12: Veterans Parkway East Junction & E Empire St

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘↙	↑↑↑		↘↙
Traffic Volume (vph)	1135	0	280	1015	0	370
Future Volume (vph)	1135	0	280	1015	0	370
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	245		0	0
Storage Lanes		0	2		0	2
Taper Length (ft)			125		25	
Satd. Flow (prot)	3455	0	3351	4964	0	2720
Flt Permitted			0.950			
Satd. Flow (perm)	3455	0	3351	4964	0	2720
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						95
Link Speed (mph)	35			35	35	
Link Distance (ft)	509			2577	334	
Travel Time (s)	9.9			50.2	6.5	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	0%	1%	1%	0%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1170	0	289	1046	0	381
Turn Type	NA		Prot	NA		Over
Protected Phases	2		4	2 4		4
Permitted Phases						
Detector Phase	2		4	2 4		4
Switch Phase						
Minimum Initial (s)	8.0		4.0			4.0
Minimum Split (s)	21.0		23.0			23.0
Total Split (s)	80.0		60.0			60.0
Total Split (%)	57.1%		42.9%			42.9%
Maximum Green (s)	73.0		53.0			53.0
Yellow Time (s)	4.5		4.5			4.5
All-Red Time (s)	2.5		2.5			2.5
Lost Time Adjust (s)	0.0		0.0			0.0
Total Lost Time (s)	7.0		7.0			7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0			3.0
Recall Mode	C-Max		None			None
Walk Time (s)			5.0			5.0
Flash Don't Walk (s)			11.0			11.0
Pedestrian Calls (#/hr)			0			0
Act Effct Green (s)	92.3		33.7	140.0		33.7
Actuated g/C Ratio	0.66		0.24	1.00		0.24
v/c Ratio	0.51		0.36	0.21		0.52
Control Delay (s/veh)	0.6		43.6	0.1		12.3
Queue Delay	0.4		0.0	0.0		0.0
Total Delay (s/veh)	1.0		43.6	0.1		12.3
LOS	A		D	A		B
Approach Delay (s/veh)	1.0			9.5	12.3	
Approach LOS	A			A	B	

Lanes, Volumes, Timings
 13: Veterans Pkwy & Empire Street South Junction

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	 		   			  
Traffic Volume (vph)	280	0	2260	370	0	1980
Future Volume (vph)	280	0	2260	370	0	1980
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		410	0	
Storage Lanes	2	0		1	0	
Taper Length (ft)	25				25	
Satd. Flow (prot)	3351	0	7365	1546	0	4964
Flt Permitted	0.950					
Satd. Flow (perm)	3351	0	7365	1546	0	4964
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)						
Link Speed (mph)	35		45			45
Link Distance (ft)	378		1025			475
Travel Time (s)	7.4		15.5			7.2
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	1%	0%	1%	1%	0%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	292	0	2354	385	0	2063
Turn Type	Prot		NA	pm+ov		NA
Protected Phases	3		2	3		6
Permitted Phases				2		
Detector Phase	3		2	3		6
Switch Phase						
Minimum Initial (s)	6.0		15.0	6.0		15.0
Minimum Split (s)	15.0		23.5	15.0		22.0
Total Split (s)	54.0		86.0	54.0		86.0
Total Split (%)	38.6%		61.4%	38.6%		61.4%
Maximum Green (s)	47.0		79.0	47.0		79.0
Yellow Time (s)	4.5		4.5	4.5		4.5
All-Red Time (s)	2.5		2.5	2.5		2.5
Lost Time Adjust (s)	0.0		0.0	0.0		0.0
Total Lost Time (s)	7.0		7.0	7.0		7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0		2.0	2.0		2.0
Recall Mode	None		C-Max	None		C-Max
Act Effct Green (s)	16.8		109.2	140.0		109.2
Actuated g/C Ratio	0.12		0.78	1.00		0.78
v/c Ratio	0.73		0.41	0.25		0.53
Control Delay (s/veh)	54.9		2.4	0.2		1.0
Queue Delay	0.0		0.0	0.0		0.2
Total Delay (s/veh)	54.9		2.4	0.2		1.2
LOS	D		A	A		A
Approach Delay (s/veh)	54.9		2.1			1.2
Approach LOS	D		A			A
90th %ile Green (s)	21.5		104.5	21.5		104.5
90th %ile Term Code	Gap		Coord	Gap		Coord
70th %ile Green (s)	18.7		107.3	18.7		107.3

Lanes, Volumes, Timings
 13: Veterans Pkwy & Empire Street South Junction

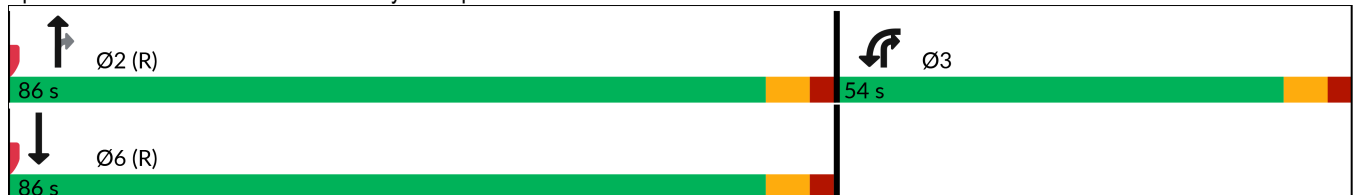


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
70th %ile Term Code	Gap		Coord	Gap		Coord
50th %ile Green (s)	16.8		109.2	16.8		109.2
50th %ile Term Code	Gap		Coord	Gap		Coord
30th %ile Green (s)	14.8		111.2	14.8		111.2
30th %ile Term Code	Gap		Coord	Gap		Coord
10th %ile Green (s)	12.0		114.0	12.0		114.0
10th %ile Term Code	Gap		Coord	Gap		Coord
Queue Length 50th (ft)	146		65	0		20
Queue Length 95th (ft)	196		67	m0		27
Internal Link Dist (ft)	298		945			395
Turn Bay Length (ft)				410		
Base Capacity (vph)	1124		5746	1546		3873
Starvation Cap Reductn	0		0	0		838
Spillback Cap Reductn	0		353	0		0
Storage Cap Reductn	0		0	0		0
Reduced v/c Ratio	0.26		0.44	0.25		0.68























Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 61 (44%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 45
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.73
 Intersection Signal Delay (s/veh): 4.8 Intersection LOS: A
 Intersection Capacity Utilization 57.9% ICU Level of Service B
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 13: Veterans Pkwy & Empire Street South Junction



Lanes, Volumes, Timings
 14: Veterans Pkwy & Eastland Dr

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	240	125	125	140	85	260	90	2130	165	225	1925	110
Future Volume (vph)	240	125	125	140	85	260	90	2130	165	225	1925	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		105	145		305	535		535	365		555
Storage Lanes	1		0	1		0	1		1	2		0
Taper Length (ft)	215			125			225			230		
Satd. Flow (prot)	1711	3175	0	1728	3072	0	1745	4964	1546	3351	4911	0
Flt Permitted	0.212			0.591			0.950			0.950		
Satd. Flow (perm)	382	3175	0	1074	3072	0	1745	4964	1546	3351	4911	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		130			243				172			7
Link Speed (mph)		30			30			45				45
Link Distance (ft)		1352			1635			1478				1025
Travel Time (s)		30.7			37.2			22.4				15.5
Confl. Peds. (#/hr)			1	1			1					1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	1%	1%	1%	0%	1%	0%	1%	1%	1%	1%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	250	260	0	146	360	0	94	2219	172	234	2120	0
Turn Type	pm+pt	NA		pm+pt	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases	4			8					2			
Detector Phase	7	4		3	8		5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	15.0	5.0	5.0	15.0	
Minimum Split (s)	12.0	49.0		12.0	46.0		12.0	35.0	12.0	12.0	35.0	
Total Split (s)	26.0	44.0		24.0	42.0		18.0	53.0	24.0	19.0	54.0	
Total Split (%)	18.6%	31.4%		17.1%	30.0%		12.9%	37.9%	17.1%	13.6%	38.6%	
Maximum Green (s)	19.0	37.0		17.0	35.0		11.0	46.0	17.0	12.0	47.0	
Yellow Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5	2.5	2.5	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.5	2.0		1.5	2.0		3.0	3.0	1.5	3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max	None	None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		35.0			32.0			21.0			21.0	
Pedestrian Calls (#/hr)		5			5			5			5	
Act Effct Green (s)	37.1	18.9		27.1	13.9		11.8	67.9	81.1	12.0	68.1	
Actuated g/C Ratio	0.27	0.14		0.19	0.10		0.08	0.49	0.58	0.09	0.49	
v/c Ratio	0.92	0.48		0.54	0.69		0.64	0.92	0.18	0.82	0.89	
Control Delay (s/veh)	78.1	29.1		45.9	25.3		55.3	56.4	5.7	64.0	21.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	78.1	29.1		45.9	25.3		55.3	56.4	5.7	64.0	21.3	
LOS	E	C		D	C		E	E	A	E	C	
Approach Delay (s/veh)		53.1			31.3			52.9			25.6	

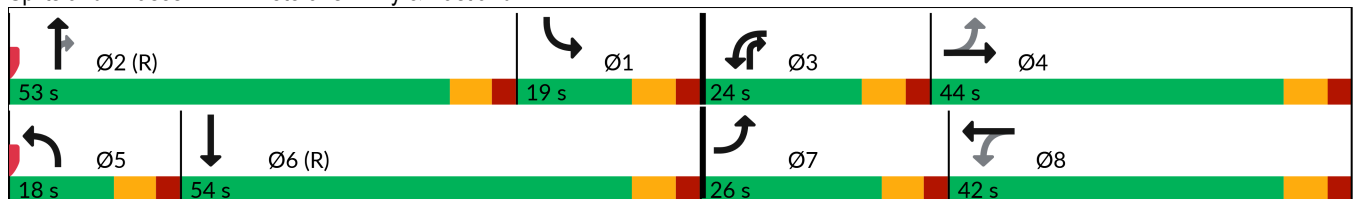
Lanes, Volumes, Timings
 14: Veterans Pkwy & Eastland Dr

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			C			D			C		
90th %ile Green (s)	19.0	38.2		15.8	35.0		11.0	46.0	15.8	12.0	47.0	
90th %ile Term Code	Max	Ped		Gap	Ped		Max	Coord	Gap	Max	Coord	
70th %ile Green (s)	19.0	14.6		15.9	11.5		15.3	69.5	15.9	12.0	66.2	
70th %ile Term Code	Max	Hold		Gap	Gap		Gap	Coord	Gap	Max	Coord	
50th %ile Green (s)	19.0	14.1		13.9	9.0		13.2	72.0	13.9	12.0	70.8	
50th %ile Term Code	Max	Hold		Gap	Gap		Gap	Coord	Gap	Max	Coord	
30th %ile Green (s)	19.0	14.2		11.8	7.0		11.2	74.0	11.8	12.0	74.8	
30th %ile Term Code	Max	Hold		Gap	Min		Gap	Coord	Gap	Max	Coord	
10th %ile Green (s)	15.0	13.4		8.6	7.0		8.3	78.0	8.6	12.0	81.7	
10th %ile Term Code	Gap	Hold		Gap	Min		Gap	Coord	Gap	Hold	Coord	
Queue Length 50th (ft)	201	59		110	55		80	781	23	112	176	
Queue Length 95th (ft)	#231	85		129	88		m104	m#978	m24	#176	#985	
Internal Link Dist (ft)		1272			1555			1398			945	
Turn Bay Length (ft)	350			145			535		535	365		
Base Capacity (vph)	281	939		316	950		153	2407	1005	287	2392	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.89	0.28		0.46	0.38		0.61	0.92	0.17	0.82	0.89	
































Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 54 (39%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.92
 Intersection Signal Delay (s/veh): 40.0 Intersection LOS: D
 Intersection Capacity Utilization 95.0% ICU Level of Service F
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 14: Veterans Pkwy & Eastland Dr



Lanes, Volumes, Timings
 15: Veterans Pkwy & E Washington St

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 			  			  	
Traffic Volume (vph)	410	350	230	185	230	240	100	1735	175	190	1785	215
Future Volume (vph)	410	350	230	185	230	240	100	1735	175	190	1785	215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	315		310	160		315	495		490	435		615
Storage Lanes	2		1	2		1	1		1	1		1
Taper Length (ft)	50			155			225			235		
Satd. Flow (prot)	3351	3455	1546	3385	3490	1546	1728	4964	1561	1728	4964	1561
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3351	3455	1526	3385	3490	1521	1727	4964	1561	1728	4964	1540
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			86			140			140			159
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		494			1269			1707			1478	
Travel Time (s)		11.2			28.8			25.9			22.4	
Confl. Peds. (#/hr)							1					1
Confl. Bikes (#/hr)			1			4						1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	1%	1%	0%	0%	1%	1%	1%	0%	1%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	436	372	245	197	245	255	106	1846	186	202	1899	229
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	8.0	5.0	5.0	8.0	5.0	5.0	10.0	5.0	5.0	10.0	5.0
Minimum Split (s)	12.0	49.0	13.0	12.0	49.0	12.0	13.0	41.0	12.0	12.0	41.0	12.0
Total Split (s)	36.0	43.0	19.0	21.0	28.0	19.0	19.0	57.0	21.0	19.0	57.0	36.0
Total Split (%)	25.7%	30.7%	13.6%	15.0%	20.0%	13.6%	13.6%	40.7%	15.0%	13.6%	40.7%	25.7%
Maximum Green (s)	29.0	36.0	12.0	14.0	21.0	12.0	12.0	50.0	14.0	12.0	50.0	29.0
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		35.0			35.0			27.0			27.0	
Pedestrian Calls (#/hr)		5			5			5			5	
Act Effct Green (s)	22.5	26.1	38.2	12.1	15.7	39.5	12.1	50.0	69.1	23.8	61.7	84.3
Actuated g/C Ratio	0.16	0.19	0.27	0.09	0.11	0.28	0.09	0.36	0.49	0.17	0.44	0.60
v/c Ratio	0.81	0.58	0.51	0.68	0.63	0.48	0.71	1.04	0.22	0.69	0.87	0.23
Control Delay (s/veh)	68.7	54.8	26.4	73.8	66.3	20.0	98.5	52.5	2.7	80.7	17.5	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	68.7	54.8	26.4	73.8	66.3	20.0	98.5	52.5	2.7	80.7	17.5	0.6
LOS	E	D	C	E	E	B	F	D	A	F	B	A

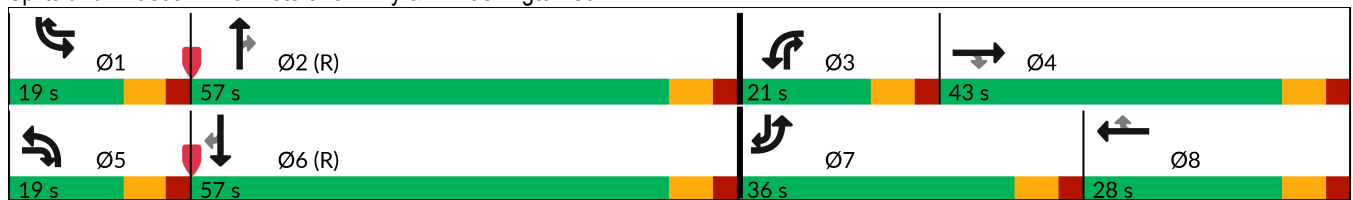
Lanes, Volumes, Timings
 15: Veterans Pkwy & E Washington St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay (s/veh)	54.0			51.5			50.5			21.3		
Approach LOS	D			D			D			C		
90th %ile Green (s)	28.1	36.0	12.0	14.0	21.9	12.0	12.0	50.0	14.0	12.0	50.0	28.1
90th %ile Term Code	Gap	Ped	Max	Max	Ped	Max	Max	Coord	Max	Max	Coord	Gap
70th %ile Green (s)	24.8	27.6	15.6	14.0	16.8	20.4	15.6	50.0	14.0	20.4	54.8	24.8
70th %ile Term Code	Gap	Hold	Gap	Max	Gap	Max	Gap	Coord	Max	Max	Coord	Gap
50th %ile Green (s)	22.6	25.2	13.4	12.5	15.1	24.3	13.4	50.0	12.5	24.3	60.9	22.6
50th %ile Term Code	Gap	Hold	Gap	Gap	Gap	Max	Gap	Coord	Gap	Max	Coord	Gap
30th %ile Green (s)	20.2	22.6	11.3	11.0	13.4	28.4	11.3	50.0	11.0	28.4	67.1	20.2
30th %ile Term Code	Gap	Hold	Gap	Gap	Gap	Max	Gap	Coord	Gap	Max	Coord	Gap
10th %ile Green (s)	16.9	19.2	8.1	8.8	11.1	34.0	8.1	50.0	8.8	34.0	75.9	16.9
10th %ile Term Code	Gap	Hold	Gap	Gap	Gap	Max	Gap	Coord	Gap	Max	Coord	Gap
Queue Length 50th (ft)	200	165	112	90	114	77	93	~648	8	164	466	4
Queue Length 95th (ft)	248	199	172	132	153	167	#186	#741	20	m#315	#767	m0
Internal Link Dist (ft)	414			1189			1627			1398		
Turn Bay Length (ft)	315		310	160		315	495		490	435		615
Base Capacity (vph)	694	888	490	338	527	533	160	1772	860	293	2189	1058
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.42	0.50	0.58	0.46	0.48	0.66	1.04	0.22	0.69	0.87	0.22

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 89 (64%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 145
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.04
 Intersection Signal Delay (s/veh): 40.3 Intersection LOS: D
 Intersection Capacity Utilization 85.7% ICU Level of Service E
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: Veterans Pkwy & E Washington St

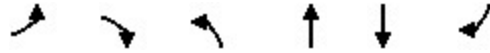


Lanes, Volumes, Timings
 16: Veterans Pkwy & E Jackson St



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	55	40	2	1955	2175	25
Future Volume (vph)	55	40	2	1955	2175	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	130			570
Storage Lanes	1	1	1			0
Taper Length (ft)	25		185			
Satd. Flow (prot)	1745	1561	1745	4964	4955	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1743	1561	1745	4964	4955	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		2			2	
Link Speed (mph)	25			45	45	
Link Distance (ft)	493			666	1707	
Travel Time (s)	13.4			10.1	25.9	
Confl. Peds. (#/hr)	1					
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	1%	1%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	58	42	2	2058	2315	0
Turn Type	Prot	pt+ov	Prot	NA	NA	
Protected Phases	3	3 5	5	2	6	
Permitted Phases						
Detector Phase	3	3 5	5	2	6	
Switch Phase						
Minimum Initial (s)	5.0		5.0	10.0	10.0	
Minimum Split (s)	46.0		12.0	17.0	32.0	
Total Split (s)	41.0		21.0	99.0	78.0	
Total Split (%)	29.3%		15.0%	70.7%	55.7%	
Maximum Green (s)	34.0		14.0	92.0	71.0	
Yellow Time (s)	4.5		4.5	4.5	4.5	
All-Red Time (s)	2.5		2.5	2.5	2.5	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	7.0		7.0	7.0	7.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	None		None	C-Max	C-Max	
Walk Time (s)	7.0				7.0	
Flash Don't Walk (s)	32.0				18.0	
Pedestrian Calls (#/hr)	5				5	
Act Effct Green (s)	14.0	24.3	5.8	116.0	105.7	
Actuated g/C Ratio	0.10	0.17	0.04	0.83	0.76	
v/c Ratio	0.33	0.15	0.03	0.50	0.62	
Control Delay (s/veh)	60.1	42.5	86.0	4.7	16.2	
Queue Delay	0.0	0.0	0.0	0.3	0.0	
Total Delay (s/veh)	60.1	42.5	86.0	5.0	16.2	
LOS	E	D	F	A	B	
Approach Delay (s/veh)	52.7			5.0	16.2	

Lanes, Volumes, Timings
 16: Veterans Pkwy & E Jackson St



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach LOS	D		A		B	
90th %ile Green (s)	34.0		6.3	92.0	78.7	
90th %ile Term Code	Ped		Gap	Coord	Coord	
70th %ile Green (s)	11.6		5.9	114.4	101.5	
70th %ile Term Code	Gap		Gap	Coord	Coord	
50th %ile Green (s)	10.0		5.6	116.0	103.4	
50th %ile Term Code	Gap		Gap	Coord	Coord	
30th %ile Green (s)	8.4		5.6	117.6	105.0	
30th %ile Term Code	Gap		Gap	Coord	Coord	
10th %ile Green (s)	0.0		0.0	133.0	133.0	
10th %ile Term Code	Skip		Skip	Coord	Coord	
Queue Length 50th (ft)	52	32	2	111	271	
Queue Length 95th (ft)	82	53	m1	m194	497	
Internal Link Dist (ft)	413		586		1627	
Turn Bay Length (ft)			130			
Base Capacity (vph)	423	427	174	4113	3742	
Starvation Cap Reductn	0	0	0	1122	0	
Spillback Cap Reductn	0	0	0	0	29	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.14	0.10	0.01	0.69	0.62	























Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 52 (37%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 120
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.62
 Intersection Signal Delay (s/veh): 11.9 Intersection LOS: B
 Intersection Capacity Utilization 58.4% ICU Level of Service B
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: Veterans Pkwy & E Jackson St



Lanes, Volumes, Timings
17: Veterans Pkwy & Oakland Ave

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	340	460	160	145	335	235	120	1380	200	345	1455	415
Future Volume (vph)	340	460	160	145	335	235	120	1380	200	345	1455	415
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	410		0	280		240	400		450	175		160
Storage Lanes	1		0	1		0	2		1	2		1
Taper Length (ft)	90			115			275			190		
Satd. Flow (prot)	1745	3329	0	1728	3254	0	3385	4964	1561	3385	4964	1546
Flt Permitted	0.123			0.385			0.950			0.950		
Satd. Flow (perm)	226	3329	0	700	3254	0	3385	4964	1561	3385	4964	1546
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		36			115				140			107
Link Speed (mph)		30			35			45				45
Link Distance (ft)		1460			1350			2739				666
Travel Time (s)		33.2			26.3			41.5				10.1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	1%	0%	1%	1%	0%	0%	1%	0%	0%	1%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	358	652	0	153	600	0	126	1453	211	363	1532	437
Turn Type	pm+pt	NA		pm+pt	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases	4			8					2			6
Detector Phase	7	4		3	8		5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	8.0		5.0	8.0		5.0	12.0	5.0	5.0	12.0	5.0
Minimum Split (s)	12.0	49.0		12.0	49.0		12.0	35.0	12.0	12.0	35.0	12.0
Total Split (s)	32.0	52.0		17.0	37.0		14.0	44.0	17.0	27.0	57.0	32.0
Total Split (%)	22.9%	37.1%		12.1%	26.4%		10.0%	31.4%	12.1%	19.3%	40.7%	22.9%
Maximum Green (s)	25.0	45.0		10.0	30.0		7.0	37.0	10.0	20.0	50.0	25.0
Yellow Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lead	Lead	Lag	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	6.0	2.0	2.0	6.0	2.0
Recall Mode	None	None		None	None		None	C-Max	None	None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		35.0			35.0			21.0			21.0	
Pedestrian Calls (#/hr)		5			5			5			5	
Act Effct Green (s)	57.3	40.6		35.2	25.5		8.0	41.7	51.4	20.0	53.7	85.5
Actuated g/C Ratio	0.41	0.29		0.25	0.18		0.06	0.30	0.37	0.14	0.38	0.61
v/c Ratio	0.99	0.66		0.62	0.87		0.65	0.98	0.32	0.75	0.81	0.44
Control Delay (s/veh)	85.5	44.1		40.7	59.1		72.8	55.5	7.4	66.4	44.0	5.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.4
Total Delay (s/veh)	85.5	44.1		40.7	59.1		72.8	55.5	7.4	66.4	44.1	5.9
LOS	F	D		D	E		E	E	A	E	D	A
Approach Delay (s/veh)		58.8			55.3			51.0			40.4	
Approach LOS		E			E			D			D	

Lanes, Volumes, Timings
 17: Veterans Pkwy & Oakland Ave

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
90th %ile Green (s)	25.0	45.0		10.0	30.0		7.0	37.0	10.0	20.0	50.0	25.0
90th %ile Term Code	Max	Hold		Max	Ped		Max	Coord	Max	Max	Coord	Max
70th %ile Green (s)	25.0	44.5		10.0	29.5		7.5	37.5	10.0	20.0	50.0	25.0
70th %ile Term Code	Max	Hold		Max	Gap		Max	Coord	Max	Max	Coord	Max
50th %ile Green (s)	25.0	40.9		10.0	25.9		9.9	41.1	10.0	20.0	51.2	25.0
50th %ile Term Code	Max	Hold		Max	Gap		Gap	Coord	Max	Hold	Coord	Max
30th %ile Green (s)	25.0	38.1		10.0	23.1		8.7	43.9	10.0	20.0	55.2	25.0
30th %ile Term Code	Max	Hold		Max	Gap		Gap	Coord	Max	Hold	Coord	Max
10th %ile Green (s)	24.3	34.6		8.6	18.9		6.9	48.8	8.6	20.0	61.9	24.3
10th %ile Term Code	Gap	Hold		Gap	Gap		Gap	Coord	Gap	Hold	Coord	Gap
Queue Length 50th (ft)	276	260		89	232		54	493	80	143	421	135
Queue Length 95th (ft)	#470	314		133	294		m#106	#631	33	222	504	0
Internal Link Dist (ft)		1380			1270			2659			586	
Turn Bay Length (ft)	410			280			400		450	175		160
Base Capacity (vph)	363	1094		250	787		194	1477	664	483	1902	987
Starvation Cap Reductn	0	0		0	0		0	0	0	0	10	184
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.60		0.61	0.76		0.65	0.98	0.32	0.75	0.81	0.54


























Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 65 (46%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 140
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.99
 Intersection Signal Delay (s/veh): 48.7 Intersection LOS: D
 Intersection Capacity Utilization 95.5% ICU Level of Service F
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 17: Veterans Pkwy & Oakland Ave



Lanes, Volumes, Timings
18: Veterans Pkwy & E Lincoln St

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	125	130	50	85	130	135	40	1440	125	85	1580	95
Future Volume (vph)	125	130	50	85	130	135	40	1440	125	85	1580	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190		135	245		345	415		480	365		420
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	165			190			240			230		
Satd. Flow (prot)	1728	3343	0	1745	3184	0	1745	4909	0	1745	4923	0
Flt Permitted	0.396			0.632			0.950			0.950		
Satd. Flow (perm)	720	3343	0	1161	3184	0	1745	4909	0	1745	4923	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		38			144			11			8	
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		528			572			1313			2739	
Travel Time (s)		12.0			13.0			19.9			41.5	
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	0%	0%	0%	1%	0%	0%	1%	0%	0%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	133	191	0	90	282	0	43	1665	0	90	1782	0
Turn Type	pm+pt	NA		pm+pt	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8								
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	8.0		5.0	8.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	12.0	46.0		12.0	46.0		12.0	38.0		12.0	38.0	
Total Split (s)	16.0	43.0		16.0	43.0		14.0	58.0		23.0	67.0	
Total Split (%)	11.4%	30.7%		11.4%	30.7%		10.0%	41.4%		16.4%	47.9%	
Maximum Green (s)	9.0	36.0		9.0	36.0		7.0	51.0		16.0	60.0	
Yellow Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0		1.0	1.0		1.0	3.0		1.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		32.0			32.0			24.0			24.0	
Pedestrian Calls (#/hr)		5			5			5			5	
Act Effct Green (s)	24.1	15.4		22.8	14.8		6.6	77.9		10.6	84.3	
Actuated g/C Ratio	0.17	0.11		0.16	0.11		0.05	0.56		0.08	0.60	
v/c Ratio	0.71	0.48		0.41	0.61		0.52	0.61		0.68	0.60	
Control Delay (s/veh)	66.5	48.9		48.2	33.0		62.1	7.0		94.6	9.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	66.5	48.9		48.2	33.0		62.1	7.0		94.6	9.8	
LOS	E	D		D	C		E	A		F	A	
Approach Delay (s/veh)		56.1			36.7			8.4			13.8	

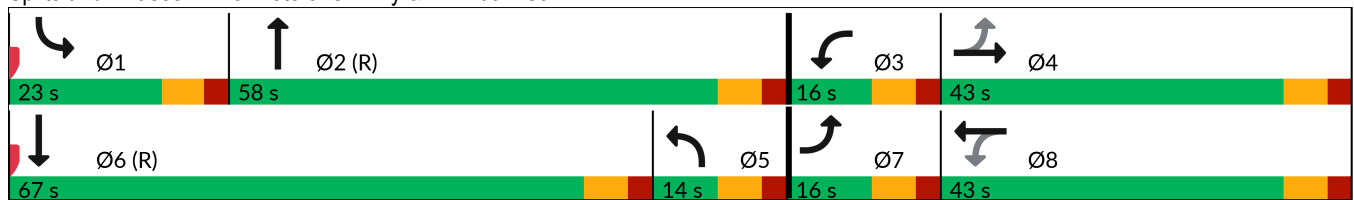
Lanes, Volumes, Timings
 18: Veterans Pkwy & E Lincoln St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	E			D			A			B		
90th %ile Green (s)	9.0	36.0		9.0	36.0		7.0	51.4		15.6	60.0	
90th %ile Term Code	Max	Ped		Max	Ped		Max	Coord		Gap	Coord	
70th %ile Green (s)	9.0	11.9		9.0	11.9		7.0	78.5		12.6	84.1	
70th %ile Term Code	Max	Hold		Max	Gap		Max	Coord		Gap	Coord	
50th %ile Green (s)	9.0	9.9		9.0	9.9		7.0	82.5		10.6	86.1	
50th %ile Term Code	Max	Gap		Max	Hold		Hold	Coord		Gap	Coord	
30th %ile Green (s)	9.0	9.1		7.9	8.0		7.0	86.4		8.6	88.0	
30th %ile Term Code	Max	Hold		Gap	Min		Hold	Coord		Gap	Coord	
10th %ile Green (s)	7.6	10.2		5.4	8.0		0.0	90.7		5.7	103.4	
10th %ile Term Code	Gap	Hold		Gap	Min		Skip	Coord		Gap	Coord	
Queue Length 50th (ft)	108	72		71	65		39	51		82	67	
Queue Length 95th (ft)	133	91		95	92		m60	423		m89	669	
Internal Link Dist (ft)		448			492			1233			2659	
Turn Bay Length (ft)	190			245			415			365		
Base Capacity (vph)	190	887		234	925		87	2736		199	2968	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.70	0.22		0.38	0.30		0.49	0.61		0.45	0.60	


















Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 138 (99%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.71
 Intersection Signal Delay (s/veh): 16.8 Intersection LOS: B
 Intersection Capacity Utilization 75.9% ICU Level of Service D
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 18: Veterans Pkwy & E Lincoln St



Lanes, Volumes, Timings
 19: Veterans Pkwy & Ireland Grove Rd

						
Lane Group	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations	 		  		 	  
Traffic Volume (vph)	205	140	1465	200	115	1600
Future Volume (vph)	205	140	1465	200	115	1600
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		585	340	
Storage Lanes	2	1		0	1	
Taper Length (ft)	25				230	
Satd. Flow (prot)	3320	1421	4875	0	1745	4916
Flt Permitted	0.959				0.950	
Satd. Flow (perm)	3320	1421	4875	0	1745	4916
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	12	7	22			
Link Speed (mph)	35		45			45
Link Distance (ft)	485		1559			1313
Travel Time (s)	9.4		23.6			19.9
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	0%	1%	1%	0%	2%
Shared Lane Traffic (%)		23%				
Lane Group Flow (vph)	252	115	1772	0	122	1702
Turn Type	Prot	pt+ov	NA		Prot	NA
Protected Phases	4	1 4	2		1	6
Permitted Phases						
Detector Phase	4	1 4	2		1	6
Switch Phase						
Minimum Initial (s)	6.0		10.0		5.0	10.0
Minimum Split (s)	46.0		38.0		12.0	46.0
Total Split (s)	43.0		67.0		30.0	97.0
Total Split (%)	30.7%		47.9%		21.4%	69.3%
Maximum Green (s)	36.0		60.0		23.0	90.0
Yellow Time (s)	4.5		4.5		4.5	4.5
All-Red Time (s)	2.5		2.5		2.5	2.5
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	7.0		7.0		7.0	7.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Recall Mode	None		C-Max		None	C-Max
Walk Time (s)	7.0		7.0			
Flash Don't Walk (s)	32.0		24.0			
Pedestrian Calls (#/hr)	5		5			
Act Effct Green (s)	18.7	48.7	77.3		23.0	107.3
Actuated g/C Ratio	0.13	0.35	0.55		0.16	0.77
v/c Ratio	0.56	0.23	0.66		0.43	0.45
Control Delay (s/veh)	57.3	29.8	24.6		43.6	1.2
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay (s/veh)	57.3	29.8	24.6		43.6	1.2
LOS	E	C	C		D	A
Approach Delay (s/veh)	48.7		24.6			4.1
Approach LOS	D		C			A

Lanes, Volumes, Timings
 19: Veterans Pkwy & Ireland Grove Rd

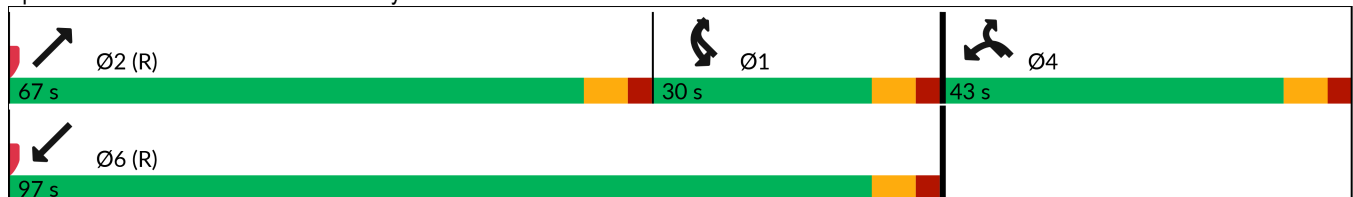


Lane Group	NWL	NWR	NET	NER	SWL	SWT
90th %ile Green (s)	36.0		60.0		23.0	90.0
90th %ile Term Code	Ped		Coord		Hold	Coord
70th %ile Green (s)	17.3		78.7		23.0	108.7
70th %ile Term Code	Gap		Coord		Hold	Coord
50th %ile Green (s)	15.5		80.5		23.0	110.5
50th %ile Term Code	Gap		Coord		Hold	Coord
30th %ile Green (s)	13.7		82.3		23.0	112.3
30th %ile Term Code	Gap		Coord		Hold	Coord
10th %ile Green (s)	11.2		84.8		23.0	114.8
10th %ile Term Code	Gap		Coord		Hold	Coord
Queue Length 50th (ft)	109	79	373		115	27
Queue Length 95th (ft)	130	105	583		159	43
Internal Link Dist (ft)	405		1479			1233
Turn Bay Length (ft)					340	
Base Capacity (vph)	862	673	2700		286	3766
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.29	0.17	0.66		0.43	0.45

Intersection Summary

Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Offset:	132 (94%), Referenced to phase 2:NET and 6:SWT, Start of 1st Green
Natural Cycle:	100
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.66
Intersection Signal Delay (s/veh):	17.4
Intersection LOS:	B
Intersection Capacity Utilization:	63.9%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 19: Veterans Pkwy & Ireland Grove Rd



Arterial Level of Service: NB Veterans Pkwy

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Ireland Grove Rd	19	23.4	46.2	0.3	23
E Lincoln St	18	11.8	31.8	0.2	28
Oakland Ave	17	19.2	59.4	0.5	31
E Jackson St	16	5.0	15.3	0.1	30
E Washington St	15	22.0	47.4	0.3	25
Eastland Dr	14	8.5	30.9	0.3	33
Empire Street South	13	4.4	20.4	0.2	34
E Empire St	11	8.5	15.1	0.1	21
Empire Street North	9	1.6	9.7	0.1	37
Clearwater Ave	8	9.4	47.3	0.5	37
General Electric Rd	7	30.9	63.1	0.4	24
Jumer Dr	6	11.8	32.7	0.3	29
E College Ave	5	38.7	60.1	0.3	16
Parkway Plaza	4	11.3	31.0	0.2	28
Fort Jesse Rd	3	30.7	51.0	0.3	18
Shepard Rd	2	21.8	59.3	0.5	29
Total		259.2	620.8	4.6	27

Arterial Level of Service: SB Veterans Pkwy

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Shepard Rd	2	16.0	65.3	0.6	34
Fort Jesse Rd	3	27.2	63.9	0.5	27
Parkway Plaza	4	11.2	32.0	0.3	29
E College Ave	5	19.6	39.1	0.2	23
Von Maur Dr	6	11.4	33.2	0.3	30
E Vernon Ave	7	36.1	56.2	0.3	17
Clearwater Ave	8	16.3	49.1	0.4	30
Empire Street North	9	9.2	47.8	0.5	37
E Empire St	11	31.0	38.7	0.1	9
Empire Street South	13	12.0	19.2	0.1	17
Eastland Dr	14	29.9	45.7	0.2	15
E Washington St	15	35.7	57.7	0.3	17
E Jackson St	16	14.3	40.2	0.3	29
Oakland Ave	17	31.3	41.1	0.1	11
E Lincoln St	18	12.1	53.1	0.5	35
Ireland Grove Rd	19	3.7	23.4	0.2	38
Total		317.0	705.6	4.9	25

























Arterial Level of Service: NB Veterans Pkwy

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Ireland Grove Rd	19	20.0	43.0	0.3	25
E Lincoln St	18	15.8	35.9	0.2	25
Oakland Ave	17	60.4	101.0	0.5	18
E Jackson St	16	8.8	19.1	0.1	24
E Washington St	15	57.6	82.8	0.3	14
Eastland Dr	14	68.7	90.6	0.3	11
Empire Street South	13	18.0	33.9	0.2	21
E Empire St	11	29.3	35.9	0.1	9
Empire Street North	9	8.4	16.5	0.1	22
Clearwater Ave	8	29.3	67.7	0.5	26
General Electric Rd	7	72.2	104.0	0.4	14
Jumer Dr	6	43.5	64.1	0.3	15
E College Ave	5	51.9	73.3	0.3	13
Parkway Plaza	4	64.6	84.3	0.2	10
Fort Jesse Rd	3	33.3	53.7	0.3	18
Shepard Rd	2	22.8	59.9	0.5	29
Total		604.4	965.8	4.6	17

Arterial Level of Service: SB Veterans Pkwy

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Shepard Rd	2	24.6	73.9	0.6	30
Fort Jesse Rd	3	65.9	102.6	0.5	17
Parkway Plaza	4	30.7	51.3	0.3	18
E College Ave	5	40.2	59.5	0.2	15
Von Maur Dr	6	41.5	62.8	0.3	16
E Vernon Ave	7	46.2	66.2	0.3	14
Clearwater Ave	8	25.8	58.5	0.4	25
Empire Street North	9	9.1	47.7	0.5	37
E Empire St	11	25.7	33.4	0.1	11
Empire Street South	13	5.9	13.1	0.1	25
Eastland Dr	14	45.2	60.9	0.2	11
E Washington St	15	54.6	76.5	0.3	13
E Jackson St	16	24.7	50.6	0.3	23
Oakland Ave	17	44.5	54.3	0.1	8
E Lincoln St	18	20.3	60.9	0.5	31
Ireland Grove Rd	19	4.5	24.2	0.2	37
Total		509.4	896.3	4.9	20

Lanes, Volumes, Timings
2: Veterans Pkwy & Shepard Rd

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				 				 			 	
Traffic Volume (vph)	5	2	15	365	10	290	30	470	215	220	1005	10
Future Volume (vph)	5	2	15	365	10	290	30	470	215	220	1005	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		180	250		0	250		450	455		260
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	140			135			185			185		
Satd. Flow (prot)	1312	1594	0	3286	1512	0	1745	3323	1501	1646	3376	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1312	1594	0	3286	1512	0	1745	3323	1501	1646	3376	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			299				222			1
Link Speed (mph)		30			40			45				45
Link Distance (ft)		462			1492			2523				3295
Travel Time (s)		10.5			25.4			38.2				49.9
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	33%	0%	0%	3%	0%	4%	0%	5%	4%	6%	3%	30%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	17	0	376	309	0	31	485	222	227	1046	0
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases									2			
Detector Phase	7	4		3	8		5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	15.0	5.0	5.0	15.0	
Minimum Split (s)	12.0	43.0		12.0	43.0		12.0	36.0	12.0	12.0	36.0	
Total Split (s)	17.0	20.0		23.0	26.0		16.0	76.0	23.0	21.0	81.0	
Total Split (%)	12.1%	14.3%		16.4%	18.6%		11.4%	54.3%	16.4%	15.0%	57.9%	
Maximum Green (s)	10.0	13.0		16.0	19.0		9.0	69.0	16.0	14.0	74.0	
Yellow Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5	2.5	2.5	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0		2.0	3.0		2.0	4.5	2.0	2.0	4.5	
Recall Mode	None	None		None	None		None	C-Max	None	None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		29.0			26.0			22.0			22.0	
Pedestrian Calls (#/hr)		5			5			5			5	
Act Effct Green (s)	5.4	8.2		16.0	22.9		7.5	69.0	92.0	24.4	90.8	
Actuated g/C Ratio	0.04	0.06		0.11	0.16		0.05	0.49	0.66	0.17	0.65	
v/c Ratio	0.10	0.16		1.00	0.62		0.33	0.30	0.21	0.79	0.48	
Control Delay (s/veh)	68.8	31.1		108.2	12.1		77.7	26.3	5.0	75.9	16.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	68.8	31.1		108.2	12.1		77.7	26.3	5.0	75.9	16.1	
LOS	E	C		F	B		E	C	A	E	B	
Approach Delay (s/veh)		39.7			64.9			22.1			26.7	
Approach LOS		D			E			C			C	

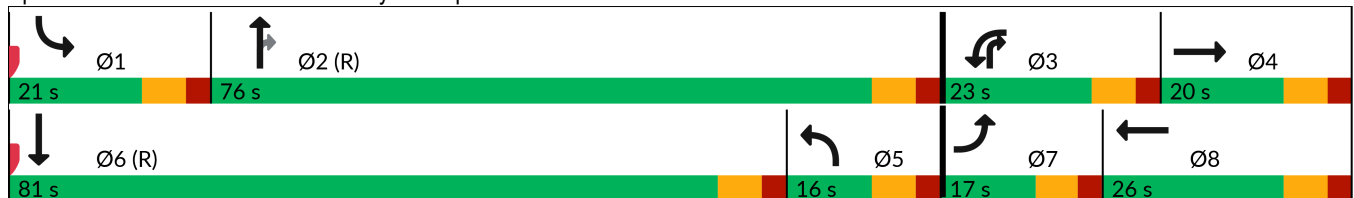
Lanes, Volumes, Timings
2: Veterans Pkwy & Shepard Rd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
90th %ile Green (s)	6.6	13.0		16.0	22.4		9.0	69.0	16.0	14.0	74.0	
90th %ile Term Code	Gap	Ped		Max	Ped		Max	Coord	Max	Max	Coord	
70th %ile Green (s)	0.0	7.0		16.0	30.0		9.0	69.0	16.0	20.0	80.0	
70th %ile Term Code	Skip	Min		Max	Hold		Hold	Coord	Max	Max	Coord	
50th %ile Green (s)	0.0	7.0		16.0	30.0		9.0	69.0	16.0	20.0	80.0	
50th %ile Term Code	Skip	Min		Max	Hold		Hold	Coord	Max	Max	Coord	
30th %ile Green (s)	0.0	0.0		16.0	16.0		0.0	69.0	16.0	34.0	110.0	
30th %ile Term Code	Skip	Skip		Max	Hold		Skip	Coord	Max	Max	Coord	
10th %ile Green (s)	0.0	0.0		16.0	16.0		0.0	69.0	16.0	34.0	110.0	
10th %ile Term Code	Skip	Skip		Max	Hold		Skip	Coord	Max	Max	Coord	
Queue Length 50th (ft)	5	2		~179	7		19	140	15	209	298	
Queue Length 95th (ft)	20	27		#288	101		m50	218	96	#445	400	
Internal Link Dist (ft)		382			1412			2443			3215	
Turn Bay Length (ft)	160			250			250		450	455		
Base Capacity (vph)	93	161		375	507		112	1637	1062	286	2189	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.05	0.11		1.00	0.61		0.28	0.30	0.21	0.79	0.48	

























Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 57 (41%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 115
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.00
 Intersection Signal Delay (s/veh): 35.2 Intersection LOS: D
 Intersection Capacity Utilization 68.2% ICU Level of Service C
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Veterans Pkwy & Shepard Rd



Lanes, Volumes, Timings
3: Veterans Pkwy & Fort Jesse Rd

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	290	295	100	400	80	225	520	75	110	1090	185
Future Volume (vph)	115	290	295	100	400	80	225	520	75	110	1090	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	110		225	175		200	245		255	345		575
Storage Lanes	1		1	1		1	2		1	1		0
Taper Length (ft)	190			160			250			205		
Satd. Flow (prot)	1544	3455	1546	1728	3388	1546	3286	3421	1501	1694	3336	0
Flt Permitted	0.285			0.471			0.950			0.950		
Satd. Flow (perm)	463	3455	1546	857	3388	1546	3286	3421	1501	1694	3336	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			305			195			86			17
Link Speed (mph)		35			30			45				45
Link Distance (ft)		1427			760			1379				2523
Travel Time (s)		27.8			17.3			20.9				38.2
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	13%	1%	1%	1%	3%	1%	3%	2%	4%	3%	2%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	120	302	307	104	417	83	234	542	78	115	1328	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases	4		4	8		8			2			
Detector Phase	7	4	4	3	8	8	5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	5.0	7.0	7.0	5.0	7.0	7.0	5.0	15.0	5.0	5.0	15.0	
Minimum Split (s)	12.0	43.0	43.0	12.0	43.0	43.0	12.0	42.0	12.0	12.0	42.0	
Total Split (s)	18.0	32.0	32.0	18.0	32.0	32.0	23.0	68.0	18.0	22.0	67.0	
Total Split (%)	12.9%	22.9%	22.9%	12.9%	22.9%	22.9%	16.4%	48.6%	12.9%	15.7%	47.9%	
Maximum Green (s)	11.0	25.0	25.0	11.0	25.0	25.0	16.0	61.0	11.0	15.0	60.0	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0	3.0	3.0	5.5	2.0	2.0	5.5	
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	
Flash Don't Walk (s)		29.0	29.0		26.0	26.0		28.0			28.0	
Pedestrian Calls (#/hr)		5	5		5	5		5			5	
Act Effct Green (s)	33.2	22.7	22.7	31.9	22.1	22.1	16.0	66.8	83.5	12.7	63.5	
Actuated g/C Ratio	0.24	0.16	0.16	0.23	0.16	0.16	0.11	0.48	0.60	0.09	0.45	
v/c Ratio	0.63	0.54	0.61	0.41	0.78	0.20	0.62	0.33	0.08	0.75	0.87	
Control Delay (s/veh)	54.4	57.3	10.9	42.6	67.2	1.1	80.0	38.3	8.9	96.2	32.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	54.4	57.3	10.9	42.6	67.2	1.1	80.0	38.3	8.9	96.2	32.6	
LOS	D	E	B	D	E	A	F	D	A	F	C	
Approach Delay (s/veh)		37.3			53.9			47.0			37.7	
Approach LOS		D			D			D			D	

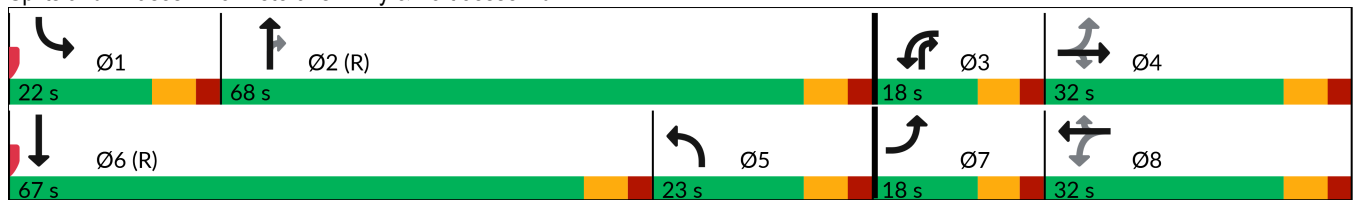
Lanes, Volumes, Timings
 3: Veterans Pkwy & Fort Jesse Rd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
90th %ile Green (s)	11.0	25.0	25.0	11.0	25.0	25.0	16.0	61.0	11.0	15.0	60.0	
90th %ile Term Code	Max	Ped	Ped	Max	Ped	Ped	Max	Coord	Max	Max	Coord	
70th %ile Green (s)	11.0	25.0	25.0	11.0	25.0	25.0	16.0	61.0	11.0	15.0	60.0	
70th %ile Term Code	Max	Hold	Hold	Max	Max	Max	Max	Coord	Max	Max	Coord	
50th %ile Green (s)	11.0	23.4	23.4	10.8	23.2	23.2	16.0	63.9	10.8	13.9	61.8	
50th %ile Term Code	Max	Hold	Hold	Gap	Gap	Gap	Hold	Coord	Gap	Gap	Coord	
30th %ile Green (s)	11.0	22.0	22.0	9.2	20.2	20.2	16.0	69.3	9.2	11.5	64.8	
30th %ile Term Code	Max	Hold	Hold	Gap	Gap	Gap	Hold	Coord	Gap	Gap	Coord	
10th %ile Green (s)	8.2	18.3	18.3	6.9	17.0	17.0	16.0	78.6	6.9	8.2	70.8	
10th %ile Term Code	Gap	Hold	Hold	Gap	Gap	Gap	Hold	Coord	Gap	Gap	Coord	
Queue Length 50th (ft)	84	133	2	71	192	0	116	217	14	108	612	
Queue Length 95th (ft)	137	181	89	119	249	0	131	151	27	m162	m528	
Internal Link Dist (ft)		1347			680			1299			2443	
Turn Bay Length (ft)	110		225	175		200	245		255	345		
Base Capacity (vph)	196	616	526	270	605	436	375	1631	942	181	1522	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.49	0.58	0.39	0.69	0.19	0.62	0.33	0.08	0.64	0.87	



























Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 79 (56%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 120
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.87
 Intersection Signal Delay (s/veh): 42.5 Intersection LOS: D
 Intersection Capacity Utilization 83.2% ICU Level of Service E
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Veterans Pkwy & Fort Jesse Rd



Lanes, Volumes, Timings
4: Veterans Pkwy & Parkway Plaza

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				 				 			 	
Traffic Volume (vph)	10	30	25	100	30	50	30	760	120	65	1395	25
Future Volume (vph)	10	30	25	100	30	50	30	760	120	65	1395	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	90		130	0		0	515		545	505		530
Storage Lanes	1		1	2		0	1		1	1		0
Taper Length (ft)	105			25			235			205		
Satd. Flow (prot)	1745	1481	1561	3319	1553	0	1678	3388	1561	1694	3399	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1745	1481	1535	3294	1553	0	1678	3388	1526	1693	3399	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			140		47				126			2
Link Speed (mph)		30			30			45				45
Link Distance (ft)		397			383			1295				1379
Travel Time (s)		9.0			8.7			19.6				20.9
Confl. Peds. (#/hr)			4	4					1	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	24%	0%	2%	19%	0%	4%	3%	0%	3%	2%	22%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	11	32	26	105	85	0	32	800	126	68	1494	0
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4	5	3	8		5	2	3	1	6	
Permitted Phases			4						2			
Detector Phase	7	4	5	3	8		5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0		5.0	15.0	5.0	5.0	15.0	
Minimum Split (s)	12.0	43.0	12.0	12.0	43.0		12.0	36.0	12.0	12.0	36.0	
Total Split (s)	16.0	17.0	20.0	19.0	20.0		20.0	88.0	19.0	16.0	84.0	
Total Split (%)	11.4%	12.1%	14.3%	13.6%	14.3%		14.3%	62.9%	13.6%	11.4%	60.0%	
Maximum Green (s)	9.0	10.0	13.0	12.0	13.0		13.0	81.0	12.0	9.0	77.0	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5		2.5	2.5	2.5	2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0		2.0	5.5	2.0	2.0	5.5	
Recall Mode	None	None	None	None	None		None	C-Max	None	None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		29.0			26.0			22.0			22.0	
Pedestrian Calls (#/hr)		5			5			5			5	
Act Effct Green (s)	5.7	8.5	17.1	9.0	13.5		11.4	93.7	102.7	9.0	91.1	
Actuated g/C Ratio	0.04	0.06	0.12	0.06	0.10		0.08	0.67	0.73	0.06	0.65	
v/c Ratio	0.16	0.36	0.08	0.49	0.44		0.24	0.35	0.11	0.63	0.68	
Control Delay (s/veh)	69.3	73.6	0.5	70.9	36.2		54.7	10.7	1.6	98.6	9.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	69.3	73.6	0.5	70.9	36.2		54.7	10.7	1.6	98.6	9.5	
LOS	E	E	A	E	D		D	B	A	F	A	
Approach Delay (s/veh)		45.4			55.4			11.0			13.4	

Lanes, Volumes, Timings
 4: Veterans Pkwy & Parkway Plaza

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			E			B			B		
90th %ile Green (s)	7.1	10.4	13.0	11.6	14.9		13.0	81.0	11.6	9.0	77.0	
90th %ile Term Code	Gap	Ped	Hold	Gap	Ped		Hold	Coord	Gap	Max	Coord	
70th %ile Green (s)	6.0	9.8	13.0	9.9	13.7		13.0	81.0	9.9	11.3	79.3	
70th %ile Term Code	Gap	Gap	Hold	Gap	Hold		Hold	Coord	Gap	Max	Coord	
50th %ile Green (s)	0.0	8.4	13.0	8.8	24.2		13.0	84.5	8.8	10.3	81.8	
50th %ile Term Code	Skip	Gap	Hold	Gap	Hold		Hold	Coord	Gap	Gap	Coord	
30th %ile Green (s)	0.0	0.0	13.0	7.7	7.7		13.0	102.8	7.7	8.5	98.3	
30th %ile Term Code	Skip	Skip	Hold	Gap	Hold		Hold	Coord	Gap	Gap	Coord	
10th %ile Green (s)	0.0	0.0	0.0	7.0	7.0		0.0	119.0	7.0	0.0	119.0	
10th %ile Term Code	Skip	Skip	Skip	Hold	Min		Skip	Coord	Hold	Skip	Coord	
Queue Length 50th (ft)	10	29	0	48	30		31	86	0	60	143	
Queue Length 95th (ft)	31	64	0	78	88		m63	278	m12	m78	748	
Internal Link Dist (ft)	317			303			1215			1299		
Turn Bay Length (ft)	90		130				515		545	505		
Base Capacity (vph)	112	106	328	284	216		155	2266	1186	117	2212	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.10	0.30	0.08	0.37	0.39		0.21	0.35	0.11	0.58	0.68	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 99 (71%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green

Natural Cycle: 125

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.68

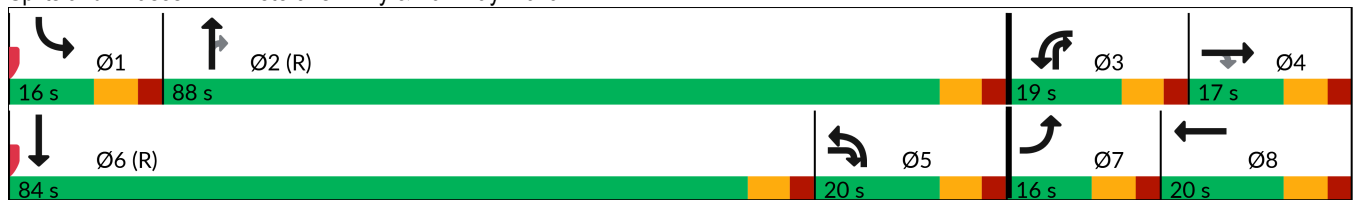
Intersection Signal Delay (s/veh): 16.2 Intersection LOS: B

Intersection Capacity Utilization 71.1% ICU Level of Service C

























Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Veterans Pkwy & Parkway Plaza



Lanes, Volumes, Timings
5: Veterans Pkwy & E College Ave

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	270	210	100	345	45	180	780	65	60	1370	90
Future Volume (vph)	85	270	210	100	345	45	180	780	65	60	1370	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	140		315	110		135	415		455	415		505
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (ft)	190			230			230			225		
Satd. Flow (prot)	3255	3355	1531	3286	3455	1432	3385	3421	1459	3286	3421	1501
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3255	3355	1531	3286	3455	1432	3385	3421	1459	3286	3421	1501
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			140			140			140			140
Link Speed (mph)		30			35			45				45
Link Distance (ft)		1820			778			1447				1295
Travel Time (s)		41.4			15.2			21.9				19.6
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	4%	4%	2%	3%	1%	9%	0%	2%	7%	3%	2%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	90	287	223	106	367	48	191	830	69	64	1457	96
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	9.0	5.0	5.0	9.0	5.0	5.0	10.0	5.0	5.0	10.0	5.0
Minimum Split (s)	12.0	43.0	12.0	12.0	43.0	12.0	12.0	42.0	12.0	12.0	42.0	12.0
Total Split (s)	12.0	43.0	16.0	12.0	43.0	13.0	16.0	72.0	12.0	13.0	69.0	12.0
Total Split (%)	8.6%	30.7%	11.4%	8.6%	30.7%	9.3%	11.4%	51.4%	8.6%	9.3%	49.3%	8.6%
Maximum Green (s)	5.0	36.0	9.0	5.0	36.0	6.0	9.0	65.0	5.0	6.0	62.0	5.0
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lag	Lag	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		29.0			29.0			28.0			28.0	
Pedestrian Calls (#/hr)		5			5			5			5	
Act Effct Green (s)	5.0	20.2	31.8	8.4	23.6	29.4	11.6	80.0	95.4	5.8	71.8	83.8
Actuated g/C Ratio	0.04	0.14	0.23	0.06	0.17	0.21	0.08	0.57	0.68	0.04	0.51	0.60
v/c Ratio	0.78	0.59	0.49	0.54	0.63	0.12	0.68	0.42	0.07	0.47	0.83	0.10
Control Delay (s/veh)	105.3	60.1	14.4	73.6	58.3	0.6	88.5	18.8	1.6	79.1	39.0	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	105.3	60.1	14.4	73.6	58.3	0.6	88.5	18.8	1.6	79.1	39.0	3.3
LOS	F	E	B	E	E	A	F	B	A	E	D	A
Approach Delay (s/veh)		49.9			56.1			29.9			38.5	
Approach LOS		D			E			C			D	

Lanes, Volumes, Timings
5: Veterans Pkwy & E College Ave

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
90th %ile Green (s)	5.0	36.0	9.0	5.0	36.0	6.0	9.0	65.0	5.0	6.0	62.0	5.0
90th %ile Term Code	Max	Ped	Max	Max	Ped	Max	Max	Coord	Max	Max	Coord	Max
70th %ile Green (s)	5.0	19.2	14.4	10.6	24.8	6.0	14.4	76.2	10.6	6.0	67.8	5.0
70th %ile Term Code	Max	Gap	Gap	Gap	Hold	Max	Gap	Coord	Gap	Max	Coord	Max
50th %ile Green (s)	5.0	17.3	13.3	9.9	22.2	6.0	13.3	78.8	9.9	6.0	71.5	5.0
50th %ile Term Code	Max	Gap	Gap	Gap	Hold	Max	Gap	Coord	Gap	Max	Coord	Max
30th %ile Green (s)	5.0	15.5	11.8	9.1	19.6	6.0	11.8	81.4	9.1	6.0	75.6	5.0
30th %ile Term Code	Max	Gap	Gap	Gap	Hold	Max	Gap	Coord	Gap	Max	Coord	Max
10th %ile Green (s)	5.0	12.8	9.6	7.4	15.2	0.0	9.6	98.8	7.4	0.0	82.2	5.0
10th %ile Term Code	Max	Gap	Gap	Gap	Hold	Skip	Gap	Coord	Gap	Skip	Coord	Max
Queue Length 50th (ft)	42	133	48	48	167	0	93	160	4	31	743	12
Queue Length 95th (ft)	#91	155	98	#111	196	0	#165	198	11	m48	#862	m28
Internal Link Dist (ft)		1740			698			1367			1215	
Turn Bay Length (ft)	140		315	110		135	415		455	415		505
Base Capacity (vph)	116	862	455	197	888	412	281	1956	1039	140	1755	954
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.33	0.49	0.54	0.41	0.12	0.68	0.42	0.07	0.46	0.83	0.10

























Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 130
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.83
 Intersection Signal Delay (s/veh): 40.2 Intersection LOS: D
 Intersection Capacity Utilization 80.0% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Veterans Pkwy & E College Ave



Lanes, Volumes, Timings
6: Veterans Pkwy & Von Maur Dr/Jumer Dr

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	35	110	95	55	5	105	990	100	2	1625	55
Future Volume (vph)	30	35	110	95	55	5	105	990	100	2	1625	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	90		120	145		225	555		695	530		590
Storage Lanes	1		1	2		1	1		1	2		1
Taper Length (ft)	80			115			220			250		
Satd. Flow (prot)	1745	3292	1501	3351	1749	1561	1694	3421	1546	3385	3421	1561
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1745	3292	1501	3351	1749	1561	1694	3421	1546	3385	3421	1561
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			140			140			102			86
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		275			1066			1370			1447	
Travel Time (s)		6.3			24.2			20.8			21.9	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	6%	4%	1%	5%	0%	3%	2%	1%	0%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	31	36	112	97	56	5	107	1010	102	2	1658	56
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0	5.0	5.0	10.0	5.0	5.0	10.0	5.0
Minimum Split (s)	12.0	43.0	12.0	12.0	43.0	12.0	12.0	39.0	12.0	12.0	39.0	12.0
Total Split (s)	18.0	37.0	21.0	18.0	37.0	12.0	21.0	73.0	18.0	12.0	64.0	18.0
Total Split (%)	12.9%	26.4%	15.0%	12.9%	26.4%	8.6%	15.0%	52.1%	12.9%	8.6%	45.7%	12.9%
Maximum Green (s)	11.0	30.0	14.0	11.0	30.0	5.0	14.0	66.0	11.0	5.0	57.0	11.0
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		29.0			29.0			25.0			25.0	
Pedestrian Calls (#/hr)		5			5			5			5	
Act Effct Green (s)	8.0	12.5	25.1	9.2	13.4	25.8	14.0	97.7	115.3	5.4	79.1	87.1
Actuated g/C Ratio	0.06	0.09	0.18	0.07	0.10	0.18	0.10	0.70	0.82	0.04	0.57	0.62
v/c Ratio	0.31	0.12	0.29	0.44	0.34	0.01	0.63	0.42	0.08	0.02	0.86	0.06
Control Delay (s/veh)	70.8	55.6	3.5	69.0	61.5	0.0	86.7	23.3	5.3	74.5	34.9	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	70.8	55.6	3.5	69.0	61.5	0.0	86.7	23.3	5.3	74.5	34.9	2.2
LOS	E	E	A	E	E	A	F	C	A	E	C	A
Approach Delay (s/veh)		25.6			64.1			27.3			33.9	
Approach LOS		C			E			C			C	

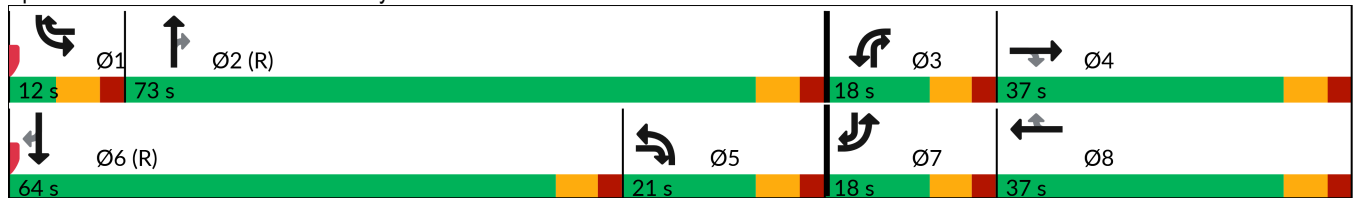
Lanes, Volumes, Timings
6: Veterans Pkwy & Von Maur Dr/Jumer Dr

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
90th %ile Green (s)	10.7	30.0	14.0	11.0	30.3	5.0	14.0	66.0	11.0	5.0	57.0	10.7
90th %ile Term Code	Gap	Ped	Max	Max	Ped	Max	Max	Coord	Max	Max	Coord	Gap
70th %ile Green (s)	9.1	10.0	14.0	10.5	11.4	0.0	14.0	98.5	10.5	0.0	77.5	9.1
70th %ile Term Code	Gap	Hold	Max	Gap	Gap	Skip	Max	Coord	Gap	Skip	Coord	Gap
50th %ile Green (s)	7.9	8.4	14.0	9.4	9.9	0.0	14.0	101.2	9.4	0.0	80.2	7.9
50th %ile Term Code	Gap	Hold	Max	Gap	Gap	Skip	Max	Coord	Gap	Skip	Coord	Gap
30th %ile Green (s)	6.7	7.0	14.0	8.1	8.4	0.0	14.0	103.9	8.1	0.0	82.9	6.7
30th %ile Term Code	Gap	Min	Hold	Gap	Hold	Skip	Hold	Coord	Gap	Skip	Coord	Gap
10th %ile Green (s)	0.0	0.0	14.0	7.0	7.0	0.0	14.0	119.0	7.0	0.0	98.0	0.0
10th %ile Term Code	Skip	Skip	Hold	Hold	Hold	Skip	Hold	Coord	Hold	Skip	Coord	Skip
Queue Length 50th (ft)	28	16	0	44	50	0	76	272	14	1	491	4
Queue Length 95th (ft)	62	30	19	74	81	0	#156	515	46	m1	#1080	m9
Internal Link Dist (ft)		195			986			1290			1367	
Turn Bay Length (ft)	90		120	145		225	555		695	530		590
Base Capacity (vph)	137	705	383	263	375	402	169	2387	1295	131	1933	1035
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.05	0.29	0.37	0.15	0.01	0.63	0.42	0.08	0.02	0.86	0.05

































Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay (s/veh): 32.5 Intersection LOS: C
 Intersection Capacity Utilization 77.6% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Veterans Pkwy & Von Maur Dr/Jumer Dr



Lanes, Volumes, Timings
 7: Veterans Pkwy & E Vernon Ave/General Electric Rd

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 		 	 		 	 	
Traffic Volume (vph)	115	385	200	130	400	90	210	990	115	135	1495	200
Future Volume (vph)	115	385	200	130	400	90	210	990	115	135	1495	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	235		140	180		160	530		590	400		685
Storage Lanes	1		1	2		1	2		1	2		1
Taper Length (ft)	80			150			230			210		
Satd. Flow (prot)	3351	3388	1531	3319	3388	1531	3319	3421	1531	3255	3421	1561
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3351	3388	1531	3319	3388	1531	3319	3421	1531	3255	3421	1561
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			140			140			140			140
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		379			486			2185			1370	
Travel Time (s)		8.6			11.0			33.1			20.8	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	1%	3%	2%	2%	3%	2%	2%	2%	2%	4%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	120	401	208	135	417	94	219	1031	120	141	1557	208
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0	5.0	5.0	10.0	5.0	5.0	10.0	5.0
Minimum Split (s)	12.0	43.0	12.0	12.0	43.0	12.0	12.0	42.0	12.0	12.0	42.0	12.0
Total Split (s)	18.0	31.0	22.0	20.0	33.0	22.0	22.0	67.0	20.0	22.0	67.0	18.0
Total Split (%)	12.9%	22.1%	15.7%	14.3%	23.6%	15.7%	15.7%	47.9%	14.3%	15.7%	47.9%	12.9%
Maximum Green (s)	11.0	24.0	15.0	13.0	26.0	15.0	15.0	60.0	13.0	15.0	60.0	11.0
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lead	Lead	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	2.0	2.5	1.0	2.0	2.0	2.5	4.5	1.0	2.0	4.5	1.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		29.0			29.0			28.0			28.0	
Pedestrian Calls (#/hr)		5			5			5			5	
Act Effct Green (s)	8.4	20.6	35.6	9.1	21.3	31.8	15.0	71.9	88.0	10.4	67.3	82.7
Actuated g/C Ratio	0.06	0.15	0.25	0.07	0.15	0.23	0.11	0.51	0.63	0.07	0.48	0.59
v/c Ratio	0.60	0.81	0.42	0.63	0.81	0.21	0.62	0.59	0.12	0.58	0.95	0.21
Control Delay (s/veh)	76.5	70.6	11.7	76.5	69.8	1.9	52.8	16.2	2.1	69.0	30.4	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	76.5	70.6	11.7	76.5	69.8	1.9	52.8	16.2	2.1	69.0	30.4	0.9
LOS	E	E	B	E	E	A	D	B	A	E	C	A
Approach Delay (s/veh)		54.7			61.3			20.8			30.0	
Approach LOS		D			E			C			C	

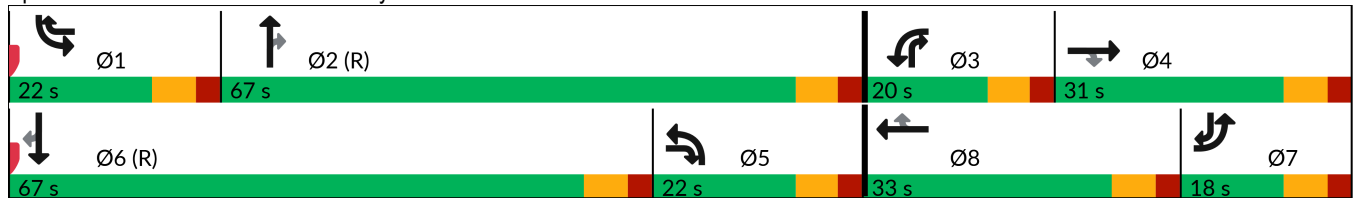
Lanes, Volumes, Timings
 7: Veterans Pkwy & E Vernon Ave/General Electric Rd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
90th %ile Green (s)	11.0	24.7	15.0	12.3	26.0	13.7	15.0	61.3	12.3	13.7	60.0	11.0
90th %ile Term Code	Max	Ped	Max	Gap	Ped	Gap	Max	Coord	Gap	Gap	Coord	Max
70th %ile Green (s)	9.7	23.0	15.0	10.4	23.7	11.8	15.0	66.8	10.4	11.8	63.6	9.7
70th %ile Term Code	Hold	Gap	Max	Gap	Gap	Gap	Max	Coord	Gap	Gap	Coord	Hold
50th %ile Green (s)	8.4	20.8	15.0	9.1	21.5	10.4	15.0	71.7	9.1	10.4	67.1	8.4
50th %ile Term Code	Gap	Gap	Hold	Gap	Gap	Gap	Hold	Coord	Gap	Gap	Coord	Gap
30th %ile Green (s)	7.2	18.7	15.0	7.8	19.3	9.1	15.0	76.4	7.8	9.1	70.5	7.2
30th %ile Term Code	Gap	Gap	Hold	Gap	Gap	Gap	Hold	Coord	Gap	Gap	Coord	Gap
10th %ile Green (s)	5.5	15.7	15.0	5.9	16.1	7.2	15.0	83.2	5.9	7.2	75.4	5.5
10th %ile Term Code	Gap	Hold	Hold	Gap	Gap	Gap	Hold	Coord	Gap	Gap	Coord	Gap
Queue Length 50th (ft)	56	188	37	62	195	0	104	211	10	59	793	8
Queue Length 95th (ft)	88	240	84	97	246	9	142	309	25	m67	#984	m1
Internal Link Dist (ft)		299			406			2105			1290	
Turn Bay Length (ft)	235		140	180		160	530		590	400		685
Base Capacity (vph)	263	583	493	308	629	500	355	1756	1052	348	1645	949
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.69	0.42	0.44	0.66	0.19	0.62	0.59	0.11	0.41	0.95	0.22













Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 30 (21%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 140
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay (s/veh): 35.5 Intersection LOS: D
 Intersection Capacity Utilization 85.9% ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Veterans Pkwy & E Vernon Ave/General Electric Rd



Lanes, Volumes, Timings
8: Veterans Pkwy & Clearwater Ave

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	155	200	1115	125	140	1685
Future Volume (vph)	155	200	1115	125	140	1685
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	335		560	380	
Storage Lanes	2	1		1	2	
Taper Length (ft)	25				240	
Satd. Flow (prot)	3286	1501	3421	1516	3286	3421
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3265	1501	3421	1496	3285	3421
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		56		88		
Link Speed (mph)	30		45			45
Link Distance (ft)	1078		2570			2185
Travel Time (s)	24.5		38.9			33.1
Confl. Peds. (#/hr)	5			1	1	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	4%	2%	3%	3%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	165	213	1186	133	149	1793
Turn Type	Prot	pt+ov	NA	pm+ov	Prot	NA
Protected Phases	3	1 3	2	3	1	6
Permitted Phases		3		2		
Detector Phase	3	1 3	2	3	1	6
Switch Phase						
Minimum Initial (s)	8.0		10.0	8.0	5.0	10.0
Minimum Split (s)	40.0		36.0	40.0	12.0	17.0
Total Split (s)	40.0		82.0	40.0	18.0	100.0
Total Split (%)	28.6%		58.6%	28.6%	12.9%	71.4%
Maximum Green (s)	33.0		75.0	33.0	11.0	93.0
Yellow Time (s)	4.5		4.5	4.5	4.5	4.5
All-Red Time (s)	2.5		2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0		7.0	7.0	7.0	7.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	4.0		3.0	4.0	2.0	3.0
Recall Mode	None		C-Max	None	None	C-Max
Walk Time (s)	7.0		7.0	7.0		
Flash Don't Walk (s)	26.0		22.0	26.0		
Pedestrian Calls (#/hr)	5		5	5		
Act Effct Green (s)	16.7	34.7	91.3	108.0	11.0	109.3
Actuated g/C Ratio	0.12	0.25	0.65	0.77	0.08	0.78
v/c Ratio	0.42	0.51	0.53	0.11	0.58	0.67
Control Delay (s/veh)	58.6	36.1	13.1	1.0	64.1	15.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	58.6	36.1	13.1	1.0	64.1	15.4
LOS	E	D	B	A	E	B
Approach Delay (s/veh)	46.0		11.9			19.2

Lanes, Volumes, Timings
 8: Veterans Pkwy & Clearwater Ave

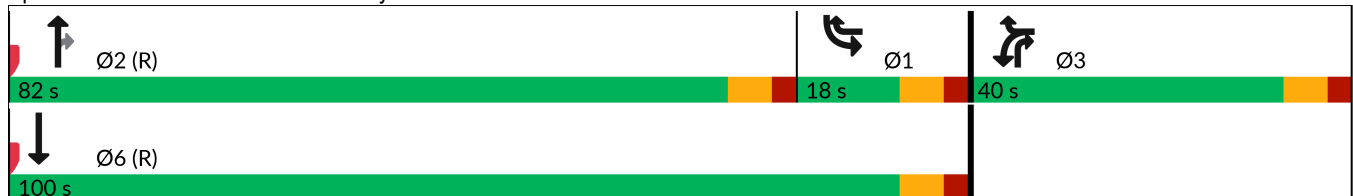


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Approach LOS	D		B		B	
90th %ile Green (s)	33.0		75.0	33.0	11.0	93.0
90th %ile Term Code	Ped		Coord	Ped	Max	Coord
70th %ile Green (s)	15.7		92.3	15.7	11.0	110.3
70th %ile Term Code	Gap		Coord	Gap	Max	Coord
50th %ile Green (s)	13.3		94.7	13.3	11.0	112.7
50th %ile Term Code	Gap		Coord	Gap	Max	Coord
30th %ile Green (s)	11.9		96.1	11.9	11.0	114.1
30th %ile Term Code	Gap		Coord	Gap	Max	Coord
10th %ile Green (s)	9.8		98.2	9.8	11.0	116.2
10th %ile Term Code	Gap		Coord	Gap	Hold	Coord
Queue Length 50th (ft)	75	128	175	0	63	361
Queue Length 95th (ft)	95	175	284	6	m73	m582
Internal Link Dist (ft)	998		2490		2105	
Turn Bay Length (ft)	335		560		380	
Base Capacity (vph)	774	582	2230	1235	258	2669
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.37	0.53	0.11	0.58	0.67

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.67
 Intersection Signal Delay (s/veh): 19.3 Intersection LOS: B
 Intersection Capacity Utilization 64.9% ICU Level of Service C
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: Veterans Pkwy & Clearwater Ave



Lanes, Volumes, Timings
 9: Veterans Pkwy & Empire Street North Junction



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	100	0	0	1140	1670	170
Future Volume (vph)	100	0	0	1140	1670	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0			480
Storage Lanes	2	0	0			1
Taper Length (ft)	25		25			
Satd. Flow (prot)	3255	0	0	4916	7293	1531
Flt Permitted	0.950					
Satd. Flow (perm)	3255	0	0	4916	7293	1531
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						
Link Speed (mph)	35			45	45	
Link Distance (ft)	383			530	2570	
Travel Time (s)	7.5			8.0	38.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	4%	0%	0%	2%	2%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	104	0	0	1188	1740	177
Turn Type	Prot			NA	NA	pm+ov
Protected Phases	3			2	6	3
Permitted Phases						6
Detector Phase	3			2	6	3
Switch Phase						
Minimum Initial (s)	8.0			15.0	15.0	8.0
Minimum Split (s)	20.0			22.0	22.0	20.0
Total Split (s)	53.0			87.0	87.0	53.0
Total Split (%)	37.9%			62.1%	62.1%	37.9%
Maximum Green (s)	46.0			80.0	80.0	46.0
Yellow Time (s)	4.5			4.5	4.5	4.5
All-Red Time (s)	2.5			2.5	2.5	2.5
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	7.0			7.0	7.0	7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Recall Mode	None			C-Max	C-Max	None
Act Effct Green (s)	10.1			115.9	115.9	140.0
Actuated g/C Ratio	0.07			0.83	0.83	1.00
v/c Ratio	0.44			0.29	0.29	0.12
Control Delay (s/veh)	54.6			2.7	3.5	0.1
Queue Delay	0.0			0.1	0.0	0.0
Total Delay (s/veh)	54.6			2.7	3.5	0.1
LOS	D			A	A	A
Approach Delay (s/veh)	54.6			2.7	3.2	
Approach LOS	D			A	A	
90th %ile Green (s)	12.7			113.3	113.3	12.7
90th %ile Term Code	Gap			Coord	Coord	Gap
70th %ile Green (s)	11.0			115.0	115.0	11.0

Lanes, Volumes, Timings
 9: Veterans Pkwy & Empire Street North Junction



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
70th %ile Term Code	Gap			Coord	Coord	Gap
50th %ile Green (s)	9.9			116.1	116.1	9.9
50th %ile Term Code	Gap			Coord	Coord	Gap
30th %ile Green (s)	8.7			117.3	117.3	8.7
30th %ile Term Code	Gap			Coord	Coord	Gap
10th %ile Green (s)	8.0			118.0	118.0	8.0
10th %ile Term Code	Min			Coord	Coord	Min
Queue Length 50th (ft)	52			29	54	0
Queue Length 95th (ft)	85			129	165	0
Internal Link Dist (ft)	303			450	2490	
Turn Bay Length (ft)						480
Base Capacity (vph)	1069			4071	6039	1531
Starvation Cap Reductn	0			1125	0	0
Spillback Cap Reductn	0			0	300	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.10			0.40	0.30	0.12

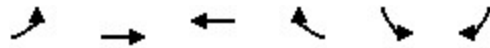
Intersection Summary

Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Offset:	104 (74%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
Natural Cycle:	45
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.44
Intersection Signal Delay (s/veh):	4.7
Intersection LOS:	A
Intersection Capacity Utilization:	40.4%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 9: Veterans Pkwy & Empire Street North Junction



Lanes, Volumes, Timings
 10: E Empire St & Veterans Parkway West Junction



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↑↑	↑↑↑	↑↑			↑↑
Traffic Volume (vph)	100	630	870	0	0	170
Future Volume (vph)	100	630	870	0	0	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	245			0	0	0
Storage Lanes	2			0	0	2
Taper Length (ft)	165				25	
Satd. Flow (prot)	3255	4821	3388	0	0	2668
Flt Permitted	0.950					
Satd. Flow (perm)	3255	4821	3388	0	0	2668
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)						148
Link Speed (mph)		35	35		35	
Link Distance (ft)		2754	530		355	
Travel Time (s)		53.6	10.3		6.9	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	4%	4%	3%	0%	0%	3%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	108	677	935	0	0	183
Turn Type	Prot	NA	NA			Over
Protected Phases	4	2 4	2			4
Permitted Phases						
Detector Phase	4	2 4	2			4
Switch Phase						
Minimum Initial (s)	8.0		8.0			8.0
Minimum Split (s)	21.0		21.0			21.0
Total Split (s)	65.0		75.0			65.0
Total Split (%)	46.4%		53.6%			46.4%
Maximum Green (s)	58.0		68.0			58.0
Yellow Time (s)	4.5		4.5			4.5
All-Red Time (s)	2.5		2.5			2.5
Lost Time Adjust (s)	0.0		0.0			0.0
Total Lost Time (s)	7.0		7.0			7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0		2.0			2.0
Recall Mode	None		C-Max			None
Act Effct Green (s)	11.4	140.0	114.6			11.4
Actuated g/C Ratio	0.08	1.00	0.82			0.08
v/c Ratio	0.41	0.14	0.34			0.52
Control Delay (s/veh)	65.0	0.1	0.5			18.8
Queue Delay	0.0	0.0	0.1			0.0
Total Delay (s/veh)	65.0	0.1	0.6			18.8
LOS	E	A	A			B
Approach Delay (s/veh)		9.0	0.6		18.8	
Approach LOS		A	A		B	
90th %ile Green (s)	15.8		110.2			15.8
90th %ile Term Code	Gap		Coord			Gap
70th %ile Green (s)	13.2		112.8			13.2

Lanes, Volumes, Timings
 10: E Empire St & Veterans Parkway West Junction



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
70th %ile Term Code	Gap		Coord			Gap
50th %ile Green (s)	11.0		115.0			11.0
50th %ile Term Code	Gap		Coord			Gap
30th %ile Green (s)	8.8		117.2			8.8
30th %ile Term Code	Gap		Coord			Gap
10th %ile Green (s)	8.0		118.0			8.0
10th %ile Term Code	Min		Coord			Min
Queue Length 50th (ft)	48	0	5			16
Queue Length 95th (ft)	78	0	2			59
Internal Link Dist (ft)		2674	450		275	
Turn Bay Length (ft)	245					
Base Capacity (vph)	1348	4821	2774			1192
Starvation Cap Reductn	0	0	570			0
Spillback Cap Reductn	0	0	0			0
Storage Cap Reductn	0	0	0			0
Reduced v/c Ratio	0.08	0.14	0.42			0.15













Intersection Summary

Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Offset:	53 (38%), Referenced to phase 2:EBWB, Start of 1st Green
Natural Cycle:	45
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.52
Intersection Signal Delay (s/veh):	5.8
Intersection LOS:	A
Intersection Capacity Utilization:	42.4%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 10: E Empire St & Veterans Parkway West Junction



Lanes, Volumes, Timings
 11: Veterans Pkwy & E Empire St

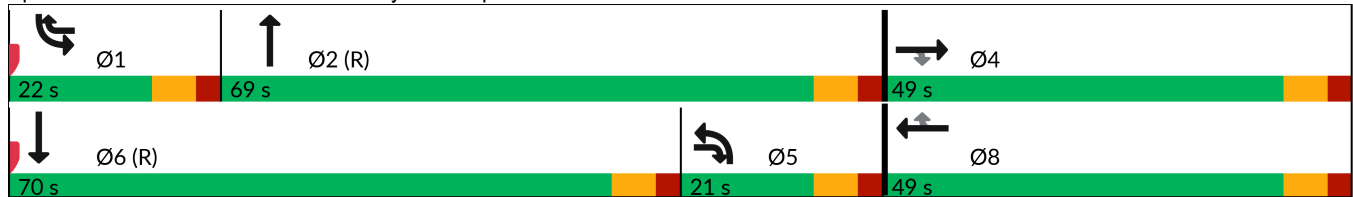
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗	↘↘	↑↑↑		↘↘	↑↑↑	
Traffic Volume (vph)	0	575	90	0	695	90	175	1050	0	160	1510	0
Future Volume (vph)	0	575	90	0	695	90	175	1050	0	160	1510	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	3355	1501	0	3421	1531	3319	4916	0	3319	4916	0
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	3355	1501	0	3421	1531	3319	4916	0	3319	4916	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			86			86						
Link Speed (mph)		35			35			45				45
Link Distance (ft)		530			509			475				530
Travel Time (s)		10.3			9.9			7.2				8.0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	4%	4%	0%	2%	2%	2%	2%	0%	2%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	605	95	0	732	95	184	1105	0	168	1589	0
Turn Type		NA	pm+ov		NA	pm+ov	Prot	NA		Prot	NA	
Protected Phases		4	5		8	1	5	2		1	6	
Permitted Phases			4			8						
Detector Phase		4	5		8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)		15.0	5.0		15.0	5.0	5.0	15.0		5.0	15.0	
Minimum Split (s)		22.0	19.0		22.0	12.0	19.0	22.0		12.0	22.0	
Total Split (s)		49.0	21.0		49.0	22.0	21.0	69.0		22.0	70.0	
Total Split (%)		35.0%	15.0%		35.0%	15.7%	15.0%	49.3%		15.7%	50.0%	
Maximum Green (s)		42.0	14.0		42.0	15.0	14.0	62.0		15.0	63.0	
Yellow Time (s)		4.5	4.5		4.5	4.5	4.5	4.5		4.5	4.5	
All-Red Time (s)		2.5	2.5		2.5	2.5	2.5	2.5		2.5	2.5	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	
Lead/Lag			Lag			Lead	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode		None	None		None	None	None	C-Max		None	C-Max	
Act Effct Green (s)		36.1	57.1		36.1	55.3	14.0	70.7		12.2	68.9	
Actuated g/C Ratio		0.26	0.41		0.26	0.40	0.10	0.51		0.09	0.49	
v/c Ratio		0.70	0.14		0.83	0.14	0.56	0.45		0.58	0.66	
Control Delay (s/veh)		51.3	6.0		57.5	5.9	45.0	3.8		66.7	25.5	
Queue Delay		0.0	0.0		0.2	0.0	0.0	0.2		0.0	0.2	
Total Delay (s/veh)		51.3	6.0		57.8	5.9	45.0	4.0		66.7	25.7	
LOS		D	A		E	A	D	A		E	C	
Approach Delay (s/veh)		45.1			51.8			9.8			29.7	
Approach LOS		D			D			A			C	
90th %ile Green (s)		42.0	14.0		42.0	15.0	14.0	62.0		15.0	63.0	
90th %ile Term Code		Hold	Max		Max	Max	Max	Coord		Max	Coord	
70th %ile Green (s)		39.5	14.0		39.5	13.8	14.0	65.7		13.8	65.5	
70th %ile Term Code		Hold	Max		Gap	Gap	Max	Coord		Gap	Coord	
50th %ile Green (s)		36.8	14.0		36.8	12.4	14.0	69.8		12.4	68.2	
50th %ile Term Code		Hold	Hold		Gap	Gap	Hold	Coord		Gap	Coord	

Lanes, Volumes, Timings
 11: Veterans Pkwy & E Empire St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
30th %ile Green (s)		33.2	14.0		33.2	10.9	14.0	74.9		10.9	71.8	
30th %ile Term Code		Hold	Hold		Gap	Gap	Hold	Coord		Gap	Coord	
10th %ile Green (s)		29.1	14.0		29.1	8.9	14.0	81.0		8.9	75.9	
10th %ile Term Code		Hold	Hold		Gap	Gap	Hold	Coord		Gap	Coord	
Queue Length 50th (ft)		262	5		331	5	90	30		71	429	
Queue Length 95th (ft)		313	37		387	37	120	64		108	608	
Internal Link Dist (ft)		450			429			395			450	
Turn Bay Length (ft)												
Base Capacity (vph)		1006	663		1026	685	331	2482		355	2418	
Starvation Cap Reductn		0	0		38	0	0	495		0	206	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.60	0.14		0.74	0.14	0.56	0.56		0.47	0.72	

Intersection Summary	
Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Offset:	114 (81%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
Natural Cycle:	75
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.83
Intersection Signal Delay (s/veh):	30.4
Intersection LOS:	C
Intersection Capacity Utilization:	70.9%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 11: Veterans Pkwy & E Empire St

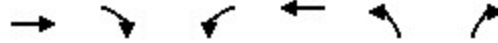


Lanes, Volumes, Timings

12: Veterans Parkway East Junction & E Empire St

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘↙	↑↑↑		↘↙
Traffic Volume (vph)	735	0	305	785	0	210
Future Volume (vph)	735	0	305	785	0	210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	245		0	0
Storage Lanes		0	2		0	2
Taper Length (ft)			125		25	
Satd. Flow (prot)	3355	0	3319	4916	0	2694
Flt Permitted			0.950			
Satd. Flow (perm)	3355	0	3319	4916	0	2694
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						284
Link Speed (mph)	35			35	35	
Link Distance (ft)	509			2577	334	
Travel Time (s)	9.9			50.2	6.5	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	4%	0%	2%	2%	0%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	758	0	314	809	0	216
Turn Type	NA		Prot	NA		Over
Protected Phases	2		4	2 4		4
Permitted Phases						
Detector Phase	2		4	2 4		4
Switch Phase						
Minimum Initial (s)	15.0		8.0			8.0
Minimum Split (s)	22.0		21.0			21.0
Total Split (s)	80.0		60.0			60.0
Total Split (%)	57.1%		42.9%			42.9%
Maximum Green (s)	73.0		53.0			53.0
Yellow Time (s)	4.5		4.5			4.5
All-Red Time (s)	2.5		2.5			2.5
Lost Time Adjust (s)	0.0		0.0			0.0
Total Lost Time (s)	7.0		7.0			7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0			3.0
Recall Mode	C-Max		None			None
Act Effct Green (s)	100.3		25.7	140.0		25.7
Actuated g/C Ratio	0.72		0.18	1.00		0.18
v/c Ratio	0.32		0.52	0.16		0.30
Control Delay (s/veh)	0.3		53.6	0.1		3.6
Queue Delay	0.1		0.0	0.0		0.0
Total Delay (s/veh)	0.4		53.6	0.1		3.6
LOS	A		D	A		A
Approach Delay (s/veh)	0.4			15.0	3.6	
Approach LOS	A			B	A	
90th %ile Green (s)	90.3		35.7			35.7
90th %ile Term Code	Coord		Gap			Gap
70th %ile Green (s)	96.4		29.6			29.6

Lanes, Volumes, Timings
 12: Veterans Parkway East Junction & E Empire St



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
70th %ile Term Code	Coord		Gap			Gap
50th %ile Green (s)	100.9		25.1			25.1
50th %ile Term Code	Coord		Gap			Gap
30th %ile Green (s)	104.7		21.3			21.3
30th %ile Term Code	Coord		Gap			Gap
10th %ile Green (s)	109.4		16.6			16.6
10th %ile Term Code	Coord		Gap			Gap
Queue Length 50th (ft)	0		135	0		13
Queue Length 95th (ft)	0		167	0		14
Internal Link Dist (ft)	429			2497	254	
Turn Bay Length (ft)			245			
Base Capacity (vph)	2404		1256	4916		1196
Starvation Cap Reductn	445		0	0		0
Spillback Cap Reductn	0		0	0		0
Storage Cap Reductn	0		0	0		0
Reduced v/c Ratio	0.39		0.25	0.16		0.18

















Intersection Summary

Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Offset:	70 (50%), Referenced to phase 2:EBWB, Start of 1st Green
Natural Cycle:	45
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.52
Intersection Signal Delay (s/veh):	8.6
Intersection LOS:	A
Intersection Capacity Utilization:	40.7%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 12: Veterans Parkway East Junction & E Empire St



Lanes, Volumes, Timings
 13: Veterans Pkwy & Empire Street South Junction

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	 		   			  
Traffic Volume (vph)	305	0	1225	210	0	1600
Future Volume (vph)	305	0	1225	210	0	1600
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		410	0	
Storage Lanes	2	0		1	0	
Taper Length (ft)	25				25	
Satd. Flow (prot)	3319	0	7293	1531	0	4916
Flt Permitted	0.950					
Satd. Flow (perm)	3319	0	7293	1531	0	4916
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)						
Link Speed (mph)	35		45			45
Link Distance (ft)	378		1025			475
Travel Time (s)	7.4		15.5			7.2
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	0%	2%	2%	0%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	318	0	1276	219	0	1667
Turn Type	Prot		NA	pm+ov		NA
Protected Phases	3		2	3		6
Permitted Phases				2		
Detector Phase	3		2	3		6
Switch Phase						
Minimum Initial (s)	6.0		15.0	6.0		15.0
Minimum Split (s)	15.0		23.5	15.0		22.0
Total Split (s)	40.0		100.0	40.0		100.0
Total Split (%)	28.6%		71.4%	28.6%		71.4%
Maximum Green (s)	33.0		93.0	33.0		93.0
Yellow Time (s)	4.5		4.5	4.5		4.5
All-Red Time (s)	2.5		2.5	2.5		2.5
Lost Time Adjust (s)	0.0		0.0	0.0		0.0
Total Lost Time (s)	7.0		7.0	7.0		7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0		2.0	2.0		2.0
Recall Mode	None		C-Max	None		C-Max
Act Effct Green (s)	17.8		108.2	140.0		108.2
Actuated g/C Ratio	0.13		0.77	1.00		0.77
v/c Ratio	0.75		0.23	0.14		0.44
Control Delay (s/veh)	53.4		0.4	0.2		0.6
Queue Delay	0.0		0.0	0.0		0.1
Total Delay (s/veh)	53.4		0.4	0.2		0.6
LOS	D		A	A		A
Approach Delay (s/veh)	53.4		0.4			0.6
Approach LOS	D		A			A
90th %ile Green (s)	22.7		103.3	22.7		103.3
90th %ile Term Code	Gap		Coord	Gap		Coord
70th %ile Green (s)	19.8		106.2	19.8		106.2

Lanes, Volumes, Timings
 13: Veterans Pkwy & Empire Street South Junction



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
70th %ile Term Code	Gap		Coord	Gap		Coord
50th %ile Green (s)	17.8		108.2	17.8		108.2
50th %ile Term Code	Gap		Coord	Gap		Coord
30th %ile Green (s)	15.9		110.1	15.9		110.1
30th %ile Term Code	Gap		Coord	Gap		Coord
10th %ile Green (s)	12.9		113.1	12.9		113.1
10th %ile Term Code	Gap		Coord	Gap		Coord
Queue Length 50th (ft)	159		3	0		6
Queue Length 95th (ft)	210		9	0		8
Internal Link Dist (ft)	298		945			395
Turn Bay Length (ft)				410		
Base Capacity (vph)	782		5635	1531		3798
Starvation Cap Reductn	0		0	0		512
Spillback Cap Reductn	0		0	0		55
Storage Cap Reductn	0		0	0		0
Reduced v/c Ratio	0.41		0.23	0.14		0.51
























Intersection Summary

Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Offset:	106 (76%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
Natural Cycle:	40
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.75
Intersection Signal Delay (s/veh):	5.3
Intersection LOS:	A
Intersection Capacity Utilization:	51.3%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 13: Veterans Pkwy & Empire Street South Junction



Lanes, Volumes, Timings
14: Veterans Pkwy & Eastland Dr

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	45	20	60	65	85	60	1315	80	125	1590	190
Future Volume (vph)	35	45	20	60	65	85	60	1315	80	125	1590	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		105	145		305	535		535	365		555
Storage Lanes	1		0	1		1	1		1	2		1
Taper Length (ft)	215			125			225			230		
Satd. Flow (prot)	1662	3183	0	1662	3490	1531	1711	3421	1531	3351	3421	1531
Flt Permitted	0.710			0.645			0.950			0.950		
Satd. Flow (perm)	1242	3183	0	1127	3490	1531	1710	3421	1531	3351	3421	1510
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21				140			86			198
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		1352			1635			1478			1025	
Travel Time (s)		30.7			37.2			22.4			15.5	
Confl. Peds. (#/hr)			1	1			1					1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	5%	2%	9%	5%	0%	2%	2%	2%	2%	1%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	68	0	63	68	89	63	1370	83	130	1656	198
Turn Type	pm+pt	NA		pm+pt	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases	4			8		8			2			6
Detector Phase	7	4		3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0	5.0	5.0	15.0	5.0	5.0	15.0	5.0
Minimum Split (s)	12.0	43.0		12.0	43.0	12.0	12.0	39.0	12.0	12.0	39.0	12.0
Total Split (s)	15.0	20.0		15.0	20.0	21.0	18.0	84.0	15.0	21.0	87.0	15.0
Total Split (%)	10.7%	14.3%		10.7%	14.3%	15.0%	12.9%	60.0%	10.7%	15.0%	62.1%	10.7%
Maximum Green (s)	8.0	13.0		8.0	13.0	14.0	11.0	77.0	8.0	14.0	80.0	8.0
Yellow Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	1.5	2.0		1.5	2.0	3.0	3.0	3.0	1.5	3.0	3.0	1.5
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		29.0			29.0			25.0			25.0	
Pedestrian Calls (#/hr)		5			5			5			5	
Act Effct Green (s)	13.5	8.3		14.8	9.0	21.6	9.8	85.3	93.9	14.0	92.2	98.7
Actuated g/C Ratio	0.10	0.06		0.11	0.06	0.15	0.07	0.61	0.67	0.10	0.66	0.71
v/c Ratio	0.26	0.33		0.43	0.30	0.25	0.53	0.66	0.08	0.39	0.74	0.18
Control Delay (s/veh)	53.9	48.3		60.2	65.5	2.4	64.9	27.2	2.6	51.4	11.4	1.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	53.9	48.3		60.2	65.5	2.4	64.9	27.2	2.6	51.4	11.4	1.1
LOS	D	D		E	E	A	E	C	A	D	B	A
Approach Delay (s/veh)		50.2			38.4			27.5			13.0	

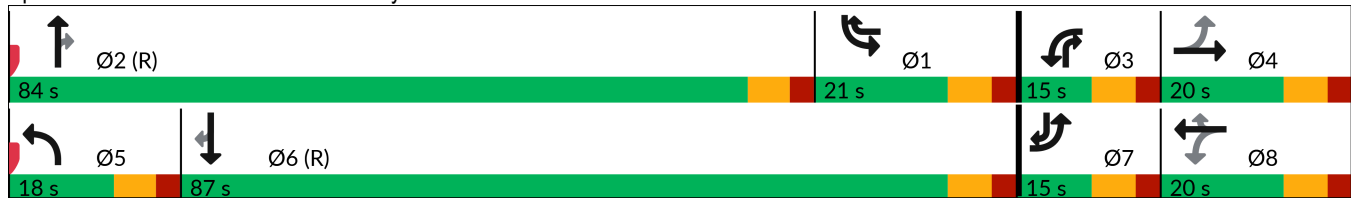
Lanes, Volumes, Timings
 14: Veterans Pkwy & Eastland Dr

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			D			C			B		
90th %ile Green (s)	8.0	13.0		8.0	13.0	14.0	11.0	77.0	8.0	14.0	80.0	8.0
90th %ile Term Code	Max	Ped		Max	Ped	Hold	Max	Coord	Max	Hold	Coord	Max
70th %ile Green (s)	7.7	7.7		8.0	8.0	14.0	12.2	82.3	8.0	14.0	84.1	7.7
70th %ile Term Code	Gap	Hold		Max	Gap	Hold	Gap	Coord	Max	Hold	Coord	Gap
50th %ile Green (s)	6.6	7.0		8.0	8.4	14.0	10.5	83.0	8.0	14.0	86.5	6.6
50th %ile Term Code	Gap	Min		Max	Hold	Hold	Gap	Coord	Max	Hold	Coord	Gap
30th %ile Green (s)	5.4	7.0		7.0	8.6	14.0	8.8	84.0	7.0	14.0	89.2	5.4
30th %ile Term Code	Gap	Min		Gap	Hold	Hold	Gap	Coord	Gap	Hold	Coord	Gap
10th %ile Green (s)	5.0	0.0		5.0	0.0	14.0	0.0	100.0	5.0	14.0	121.0	5.0
10th %ile Term Code	Min	Skip		Min	Skip	Hold	Skip	Coord	Min	Hold	Coord	Min
Queue Length 50th (ft)	29	22		51	32	0	51	673	6	58	155	8
Queue Length 95th (ft)	59	46		92	56	7	m75	742	m26	101	913	14
Internal Link Dist (ft)	1272			1555			1398			945		
Turn Bay Length (ft)	350			145			305			555		
Base Capacity (vph)	156	314		156	324	354	137	2083	1048	335	2251	1137
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.22		0.40	0.21	0.25	0.46	0.66	0.08	0.39	0.74	0.17































Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 107 (76%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 140
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.74
 Intersection Signal Delay (s/veh): 21.2 Intersection LOS: C
 Intersection Capacity Utilization 75.1% ICU Level of Service D
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 14: Veterans Pkwy & Eastland Dr



Lanes, Volumes, Timings
 15: Veterans Pkwy & E Washington St

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 			 			 	
Traffic Volume (vph)	75	195	55	75	290	160	160	1220	125	105	1175	390
Future Volume (vph)	75	195	55	75	290	160	160	1220	125	105	1175	390
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	245		310	160		315	495		490	435		615
Storage Lanes	2		1	2		1	1		1	1		1
Taper Length (ft)	85			155			225			235		
Satd. Flow (prot)	3385	3355	1516	3351	3455	1561	1711	3421	1546	1694	3388	1561
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3385	3355	1497	3351	3455	1538	1710	3421	1546	1694	3388	1540
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			140			140			133			240
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		494			1269			1707			1478	
Travel Time (s)		11.2			28.8			25.9			22.4	
Confl. Peds. (#/hr)							1					1
Confl. Bikes (#/hr)			1			4						1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	4%	3%	1%	1%	0%	2%	2%	1%	3%	3%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	80	207	59	80	309	170	170	1298	133	112	1250	415
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	8.0	5.0	5.0	8.0	5.0	5.0	10.0	5.0	5.0	10.0	5.0
Minimum Split (s)	12.0	43.0	12.0	12.0	43.0	12.0	12.0	42.0	12.0	12.0	42.0	12.0
Total Split (s)	15.0	29.0	33.0	20.0	34.0	26.0	33.0	65.0	20.0	26.0	58.0	15.0
Total Split (%)	10.7%	20.7%	23.6%	14.3%	24.3%	18.6%	23.6%	46.4%	14.3%	18.6%	41.4%	10.7%
Maximum Green (s)	8.0	22.0	26.0	13.0	27.0	19.0	26.0	58.0	13.0	19.0	51.0	8.0
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		29.0			29.0			28.0			28.0	
Pedestrian Calls (#/hr)		5			5			5			5	
Act Effct Green (s)	7.6	18.5	44.5	7.7	18.7	32.3	26.0	72.2	86.9	13.6	59.7	67.3
Actuated g/C Ratio	0.05	0.13	0.32	0.06	0.13	0.23	0.19	0.52	0.62	0.10	0.43	0.48
v/c Ratio	0.44	0.47	0.10	0.43	0.67	0.37	0.54	0.74	0.13	0.69	0.87	0.48
Control Delay (s/veh)	71.7	59.0	0.4	70.8	64.5	10.3	40.9	17.3	1.1	76.1	24.4	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	71.7	59.0	0.4	70.8	64.5	10.3	40.9	17.3	1.1	76.1	24.4	5.0
LOS	E	E	A	E	E	B	D	B	A	E	C	A

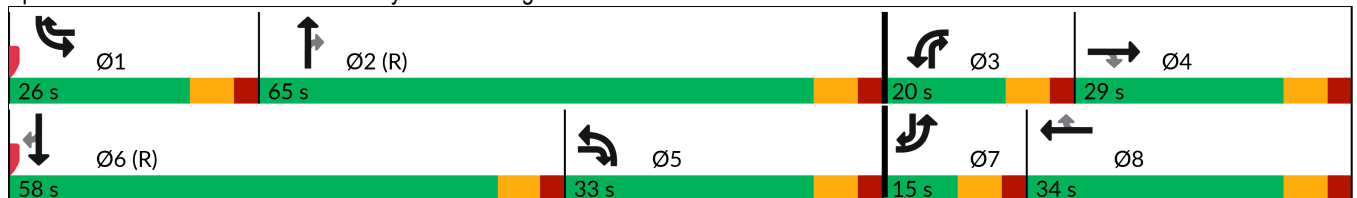
Lanes, Volumes, Timings
 15: Veterans Pkwy & E Washington St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay (s/veh)	51.9			48.9			18.5			23.1		
Approach LOS	D			D			B			C		
90th %ile Green (s)	8.0	24.9	26.0	10.1	27.0	19.0	26.0	58.0	10.1	19.0	51.0	8.0
90th %ile Term Code	Max	Ped	Hold	Gap	Ped	Max	Hold	Coord	Gap	Max	Coord	Max
70th %ile Green (s)	8.0	19.0	26.0	8.7	19.7	15.9	26.0	68.4	8.7	15.9	58.3	8.0
70th %ile Term Code	Max	Hold	Hold	Gap	Gap	Gap	Hold	Coord	Gap	Gap	Coord	Max
50th %ile Green (s)	8.0	18.1	26.0	7.7	17.8	13.6	26.0	72.6	7.7	13.6	60.2	8.0
50th %ile Term Code	Max	Hold	Hold	Gap	Gap	Gap	Hold	Coord	Gap	Gap	Coord	Max
30th %ile Green (s)	8.0	17.1	26.0	6.8	15.9	11.3	26.0	76.8	6.8	11.3	62.1	8.0
30th %ile Term Code	Max	Hold	Hold	Gap	Gap	Gap	Hold	Coord	Gap	Gap	Coord	Max
10th %ile Green (s)	5.8	13.6	26.0	5.4	13.2	8.0	26.0	85.0	5.4	8.0	67.0	5.8
10th %ile Term Code	Gap	Hold	Hold	Gap	Gap	Gap	Hold	Coord	Gap	Gap	Coord	Gap
Queue Length 50th (ft)	37	93	0	37	144	20	126	172	3	90	564	41
Queue Length 95th (ft)	65	128	0	64	182	68	193	#570	19	m123	#759	150
Internal Link Dist (ft)	414			1189			1627			1398		
Turn Bay Length (ft)	245		310	160		315	495		490	435		615
Base Capacity (vph)	193	541	575	311	666	519	317	1763	1063	229	1445	870
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.38	0.10	0.26	0.46	0.33	0.54	0.74	0.13	0.49	0.87	0.48

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 30 (21%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 120
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.87
 Intersection Signal Delay (s/veh): 27.1 Intersection LOS: C
 Intersection Capacity Utilization 76.9% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: Veterans Pkwy & E Washington St



Lanes, Volumes, Timings
 16: Veterans Pkwy & E Jackson St



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	15	80	1500	1130	175
Future Volume (vph)	5	15	80	1500	1130	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	130			570
Storage Lanes	1	1	1			0
Taper Length (ft)	25		185			
Satd. Flow (prot)	1745	1561	1745	3421	3333	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1743	1561	1745	3421	3333	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		16			20	
Link Speed (mph)	25			45	45	
Link Distance (ft)	493			666	1707	
Travel Time (s)	13.4			10.1	25.9	
Confl. Peds. (#/hr)	1					
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	2%	3%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	5	16	84	1579	1373	0
Turn Type	Prot	pt+ov	Prot	NA	NA	
Protected Phases	3	3 5	5	2	6	
Permitted Phases						
Detector Phase	3	3 5	5	2	6	
Switch Phase						
Minimum Initial (s)	5.0		5.0	10.0	10.0	
Minimum Split (s)	40.0		12.0	17.0	39.0	
Total Split (s)	40.0		16.0	100.0	84.0	
Total Split (%)	28.6%		11.4%	71.4%	60.0%	
Maximum Green (s)	33.0		9.0	93.0	77.0	
Yellow Time (s)	4.5		4.5	4.5	4.5	
All-Red Time (s)	2.5		2.5	2.5	2.5	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	7.0		7.0	7.0	7.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	None		None	C-Max	C-Max	
Walk Time (s)	7.0				7.0	
Flash Don't Walk (s)	26.0				25.0	
Pedestrian Calls (#/hr)	5				5	
Act Effct Green (s)	11.2	24.3	11.1	122.6	101.7	
Actuated g/C Ratio	0.08	0.17	0.08	0.88	0.73	
v/c Ratio	0.04	0.06	0.61	0.53	0.57	
Control Delay (s/veh)	52.0	14.6	79.2	2.9	5.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	52.0	14.6	79.2	2.9	5.2	
LOS	D	B	E	A	A	
Approach Delay (s/veh)	23.5			6.8	5.2	

Lanes, Volumes, Timings
 16: Veterans Pkwy & E Jackson St



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach LOS	C		A		A	
90th %ile Green (s)	33.0		9.0	93.0	77.0	
90th %ile Term Code	Ped		Max	Coord	Coord	
70th %ile Green (s)	6.3		14.6	119.7	98.1	
70th %ile Term Code	Gap		Gap	Coord	Coord	
50th %ile Green (s)	5.8		12.8	120.2	100.4	
50th %ile Term Code	Gap		Gap	Coord	Coord	
30th %ile Green (s)	0.0		10.9	133.0	115.1	
30th %ile Term Code	Skip		Gap	Coord	Coord	
10th %ile Green (s)	0.0		8.1	133.0	117.9	
10th %ile Term Code	Skip		Gap	Coord	Coord	
Queue Length 50th (ft)	5	0	76	38	11	
Queue Length 95th (ft)	16	17	m#116	154	142	
Internal Link Dist (ft)	413		586		1627	
Turn Bay Length (ft)			130			
Base Capacity (vph)	411	415	140	2995	2426	
Starvation Cap Reductn	0	0	0	164	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.01	0.04	0.60	0.56	0.57	
























Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 14 (10%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 95
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.61
 Intersection Signal Delay (s/veh): 6.2 Intersection LOS: A
 Intersection Capacity Utilization 62.9% ICU Level of Service B
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: Veterans Pkwy & E Jackson St



Lanes, Volumes, Timings
17: Veterans Pkwy & Oakland Ave

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	315	45	85	370	225	115	1200	105	90	920	135
Future Volume (vph)	155	315	45	85	370	225	115	1200	105	90	920	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	410		0	280		240	400		450	175		160
Storage Lanes	1		0	1		1	2		1	2		1
Taper Length (ft)	90			115			275			190		
Satd. Flow (prot)	1728	3166	0	1745	3490	1546	3351	3421	1561	3255	3388	1459
Flt Permitted	0.267			0.467			0.950			0.950		
Satd. Flow (perm)	486	3166	0	858	3490	1546	3351	3421	1561	3255	3388	1459
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11				140			111			108
Link Speed (mph)		30			35			45			45	
Link Distance (ft)		1460			1350			2739			666	
Travel Time (s)		33.2			26.3			41.5			10.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	9%	2%	0%	0%	1%	1%	2%	0%	4%	3%	7%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	163	379	0	89	389	237	121	1263	111	95	968	142
Turn Type	pm+pt	NA		pm+pt	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases	4			8		8			2			6
Detector Phase	7	4		3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	8.0		5.0	8.0	5.0	5.0	12.0	5.0	5.0	12.0	5.0
Minimum Split (s)	12.0	43.0		12.0	43.0	12.0	12.0	39.0	12.0	12.0	39.0	12.0
Total Split (s)	24.0	44.0		20.0	40.0	17.0	22.0	59.0	20.0	17.0	54.0	24.0
Total Split (%)	17.1%	31.4%		14.3%	28.6%	12.1%	15.7%	42.1%	14.3%	12.1%	38.6%	17.1%
Maximum Green (s)	17.0	37.0		13.0	33.0	10.0	15.0	52.0	13.0	10.0	47.0	17.0
Yellow Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	6.0	2.0	2.0	6.0	2.0
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		29.0			29.0			25.0			25.0	
Pedestrian Calls (#/hr)		5			5			5			5	
Act Effct Green (s)	40.8	26.4		31.3	21.6	31.6	9.4	66.0	75.6	10.0	66.6	88.0
Actuated g/C Ratio	0.29	0.19		0.22	0.15	0.23	0.07	0.47	0.54	0.07	0.48	0.63
v/c Ratio	0.61	0.63		0.35	0.72	0.52	0.54	0.78	0.12	0.41	0.60	0.15
Control Delay (s/veh)	45.2	54.6		37.5	63.7	14.9	81.7	19.9	0.7	40.2	11.8	1.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Total Delay (s/veh)	45.2	54.6		37.5	63.7	14.9	81.7	19.9	0.7	40.2	12.0	1.1
LOS	D	D		D	E	B	F	B	A	D	B	A
Approach Delay (s/veh)		51.8			44.3			23.5			12.9	
Approach LOS		D			D			C			B	

Lanes, Volumes, Timings
 17: Veterans Pkwy & Oakland Ave

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
90th %ile Green (s)	17.0	37.7		12.3	33.0	10.0	12.4	52.0	12.3	10.0	49.6	17.0
90th %ile Term Code	Max	Hold		Gap	Ped	Max	Gap	Coord	Gap	Max	Coord	Max
70th %ile Green (s)	17.0	27.9		11.3	22.2	10.0	10.6	62.8	11.3	10.0	62.2	17.0
70th %ile Term Code	Max	Hold		Gap	Gap	Max	Gap	Coord	Gap	Max	Coord	Max
50th %ile Green (s)	15.2	25.3		9.9	20.0	10.0	9.4	66.8	9.9	10.0	67.4	15.2
50th %ile Term Code	Gap	Hold		Gap	Gap	Max	Gap	Coord	Gap	Max	Coord	Gap
30th %ile Green (s)	13.0	22.4		8.5	17.9	10.0	8.2	71.1	8.5	10.0	72.9	13.0
30th %ile Term Code	Gap	Hold		Gap	Gap	Hold	Gap	Coord	Gap	Hold	Coord	Gap
10th %ile Green (s)	9.9	18.5		6.3	14.9	10.0	6.5	77.2	6.3	10.0	80.7	9.9
10th %ile Term Code	Gap	Hold		Gap	Gap	Hold	Gap	Coord	Gap	Hold	Coord	Gap
Queue Length 50th (ft)	115	165		60	182	54	51	398	1	38	64	0
Queue Length 95th (ft)	151	197		88	214	93	81	#748	m8	67	322	31
Internal Link Dist (ft)		1380			1270			2659			586	
Turn Bay Length (ft)	410			280		240	400		450	175		160
Base Capacity (vph)	297	847		294	822	457	359	1612	929	232	1610	982
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	95	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.45		0.30	0.47	0.52	0.34	0.78	0.12	0.41	0.64	0.14





















Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 39 (28%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.78
 Intersection Signal Delay (s/veh): 27.9 Intersection LOS: C
 Intersection Capacity Utilization 79.5% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 17: Veterans Pkwy & Oakland Ave



Lanes, Volumes, Timings
18: Veterans Pkwy & E Lincoln St

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	90	40	40	120	75	35	1250	65	25	920	105
Future Volume (vph)	95	90	40	40	120	75	35	1250	65	25	920	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190		135	245		345	415		480	365		420
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	165			190			240			230		
Satd. Flow (prot)	1694	3087	0	1694	3182	0	1745	3401	0	1745	3373	0
Flt Permitted	0.510			0.664			0.232			0.106		
Satd. Flow (perm)	909	3087	0	1184	3182	0	426	3401	0	195	3373	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		43			80			5			11	
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		528			572			1313			2739	
Travel Time (s)		12.0			13.0			19.9			41.5	
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	10%	3%	3%	2%	4%	0%	2%	0%	0%	2%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	101	139	0	43	208	0	37	1399	0	27	1091	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	8.0		5.0	8.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	12.0	40.0		12.0	40.0		12.0	42.0		12.0	42.0	
Total Split (s)	13.0	44.0		12.0	43.0		14.0	72.0		12.0	70.0	
Total Split (%)	9.3%	31.4%		8.6%	30.7%		10.0%	51.4%		8.6%	50.0%	
Maximum Green (s)	6.0	37.0		5.0	36.0		7.0	65.0		5.0	63.0	
Yellow Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0		1.0	1.0		1.0	3.0		1.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		26.0			26.0			28.0			28.0	
Pedestrian Calls (#/hr)		5			5			5			5	
Act Effct Green (s)	22.0	17.2		18.8	13.8		91.7	91.7		88.0	88.0	
Actuated g/C Ratio	0.16	0.12		0.13	0.10		0.66	0.66		0.63	0.63	
v/c Ratio	0.57	0.33		0.24	0.54		0.11	0.63		0.15	0.51	
Control Delay (s/veh)	61.4	39.7		47.1	40.2		3.3	3.7		5.6	7.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	61.4	39.7		47.1	40.2		3.3	3.7		5.6	7.5	
LOS	E	D		D	D		A	A		A	A	
Approach Delay (s/veh)		48.8			41.3			3.7			7.5	

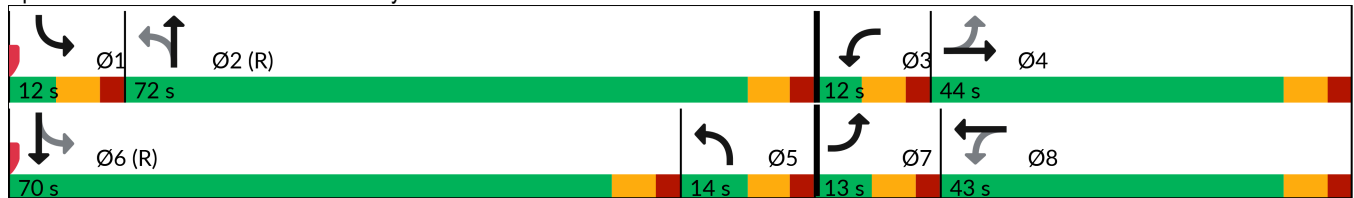
Lanes, Volumes, Timings
 18: Veterans Pkwy & E Lincoln St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			D			A			A		
90th %ile Green (s)	6.0	34.0		5.0	33.0		7.0	66.9		6.1	66.0	
90th %ile Term Code	Max	Hold		Max	Ped		Hold	Coord		Gap	Coord	
70th %ile Green (s)	6.0	12.0		5.0	11.0		7.0	90.0		5.0	88.0	
70th %ile Term Code	Max	Hold		Max	Gap		Hold	Coord		Min	Coord	
50th %ile Green (s)	6.0	10.2		5.0	9.2		7.0	91.8		5.0	89.8	
50th %ile Term Code	Max	Hold		Max	Gap		Hold	Coord		Min	Coord	
30th %ile Green (s)	6.0	9.0		5.0	8.0		7.0	105.0		0.0	91.0	
30th %ile Term Code	Max	Hold		Max	Min		Hold	Coord		Skip	Coord	
10th %ile Green (s)	6.0	21.0		0.0	8.0		0.0	105.0		0.0	105.0	
10th %ile Term Code	Max	Hold		Skip	Min		Skip	Coord		Skip	Coord	
Queue Length 50th (ft)	83	44		34	61		2	45		2	88	
Queue Length 95th (ft)	113	65		57	85		m3	59		m11	586	
Internal Link Dist (ft)	448			492			1233			2659		
Turn Bay Length (ft)	190			245			415			365		
Base Capacity (vph)	176	847		177	877		345	2230		180	2123	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.57	0.16		0.24	0.24		0.11	0.63		0.15	0.51	












Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 117 (84%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.63
 Intersection Signal Delay (s/veh): 11.8 Intersection LOS: B
 Intersection Capacity Utilization 66.7% ICU Level of Service C
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 18: Veterans Pkwy & E Lincoln St



Lanes, Volumes, Timings
 19: Veterans Pkwy & Ireland Grove Rd

						
Lane Group	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (vph)	165	110	1240	160	155	845
Future Volume (vph)	165	110	1240	160	155	845
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		585	340	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				230	
Satd. Flow (prot)	1702	1454	3323	0	1728	3388
Flt Permitted	0.955				0.950	
Satd. Flow (perm)	1702	1454	3323	0	1728	3388
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	2	22	13			
Link Speed (mph)	35		45			45
Link Distance (ft)	485		1559			1313
Travel Time (s)	9.4		23.6			19.9
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	3%	5%	1%	3%
Shared Lane Traffic (%)		10%				
Lane Group Flow (vph)	188	105	1489	0	165	899
Turn Type	Prot	pt+ov	NA		Prot	NA
Protected Phases	4	1 4	2		1	6
Permitted Phases						
Detector Phase	4	1 4	2		1	6
Switch Phase						
Minimum Initial (s)	6.0		10.0		5.0	10.0
Minimum Split (s)	40.0		39.0		12.0	17.0
Total Split (s)	40.0		71.0		29.0	100.0
Total Split (%)	28.6%		50.7%		20.7%	71.4%
Maximum Green (s)	33.0		64.0		22.0	93.0
Yellow Time (s)	4.5		4.5		4.5	4.5
All-Red Time (s)	2.5		2.5		2.5	2.5
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	7.0		7.0		7.0	7.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Recall Mode	None		C-Max		None	C-Max
Walk Time (s)	7.0		7.0			
Flash Don't Walk (s)	26.0		25.0			
Pedestrian Calls (#/hr)	5		5			
Act Effct Green (s)	21.6	50.6	75.4		22.0	104.4
Actuated g/C Ratio	0.15	0.36	0.54		0.16	0.75
v/c Ratio	0.71	0.19	0.83		0.61	0.36
Control Delay (s/veh)	69.4	23.3	32.7		53.7	1.2
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay (s/veh)	69.4	23.3	32.7		53.7	1.2
LOS	E	C	C		D	A
Approach Delay (s/veh)	52.9		32.7			9.4
Approach LOS	D		C			A

Lanes, Volumes, Timings
 19: Veterans Pkwy & Ireland Grove Rd

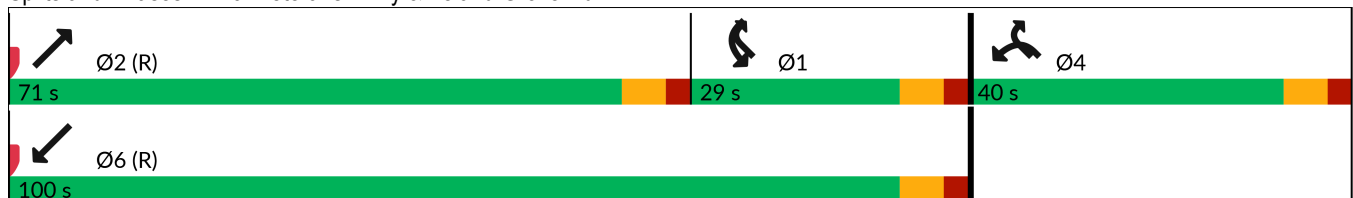


Lane Group	NWL	NWR	NET	NER	SWL	SWT
90th %ile Green (s)	33.0		64.0		22.0	93.0
90th %ile Term Code	Ped		Coord		Max	Coord
70th %ile Green (s)	23.6		73.4		22.0	102.4
70th %ile Term Code	Gap		Coord		Hold	Coord
50th %ile Green (s)	20.6		76.4		22.0	105.4
50th %ile Term Code	Gap		Coord		Hold	Coord
30th %ile Green (s)	17.6		79.4		22.0	108.4
30th %ile Term Code	Gap		Coord		Hold	Coord
10th %ile Green (s)	13.3		83.7		22.0	112.7
10th %ile Term Code	Gap		Coord		Hold	Coord
Queue Length 50th (ft)	165	54	562		157	18
Queue Length 95th (ft)	226	87	#860		236	35
Internal Link Dist (ft)	405		1479			1233
Turn Bay Length (ft)					340	
Base Capacity (vph)	402	656	1795		271	2526
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.47	0.16	0.83		0.61	0.36

























Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 109 (78%), Referenced to phase 2:NET and 6:SWT, Start of 1st Green
 Natural Cycle: 115
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.83
 Intersection Signal Delay (s/veh): 26.1 Intersection LOS: C
 Intersection Capacity Utilization 76.8% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 19: Veterans Pkwy & Ireland Grove Rd



Lanes, Volumes, Timings
2: Veterans Pkwy & Shepard Rd

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				 				 			 	
Traffic Volume (vph)	15	15	60	350	15	355	45	1010	425	300	765	25
Future Volume (vph)	15	15	60	350	15	355	45	1010	425	300	765	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		180	250		0	250		450	455		260
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	140			135			185			185		
Satd. Flow (prot)	1745	1589	0	3351	1528	0	1745	3421	1546	1728	3439	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1745	1589	0	3351	1528	0	1745	3421	1546	1728	3439	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		62			366				438			3
Link Speed (mph)		30			40			45				45
Link Distance (ft)		462			1492			2523				3295
Travel Time (s)		10.5			25.4			38.2				49.9
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	0%	2%	1%	0%	3%	0%	2%	1%	1%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	77	0	361	381	0	46	1041	438	309	815	0
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases									2			
Detector Phase	7	4		3	8		5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	15.0	5.0	5.0	15.0	
Minimum Split (s)	12.0	43.0		12.0	43.0		12.0	36.0	12.0	12.0	36.0	
Total Split (s)	26.0	24.0		26.0	24.0		23.0	53.0	26.0	37.0	67.0	
Total Split (%)	18.6%	17.1%		18.6%	17.1%		16.4%	37.9%	18.6%	26.4%	47.9%	
Maximum Green (s)	19.0	17.0		19.0	17.0		16.0	46.0	19.0	30.0	60.0	
Yellow Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5	2.5	2.5	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0		2.0	3.0		2.0	4.5	2.0	2.0	4.5	
Recall Mode	None	None		None	None		None	C-Max	None	None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		29.0			26.0			22.0			22.0	
Pedestrian Calls (#/hr)		5			5			5			5	
Act Effct Green (s)	5.9	9.4		17.8	28.6		13.8	56.4	81.3	28.3	73.4	
Actuated g/C Ratio	0.04	0.07		0.13	0.20		0.10	0.40	0.58	0.20	0.52	
v/c Ratio	0.21	0.47		0.85	0.63		0.27	0.75	0.41	0.89	0.45	
Control Delay (s/veh)	70.7	28.6		78.0	10.9		27.7	12.3	0.7	80.0	23.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	70.7	28.6		78.0	10.9		27.7	12.3	0.7	80.0	23.8	
LOS	E	C		E	B		C	B	A	F	C	
Approach Delay (s/veh)		35.5			43.6			9.4			39.2	
Approach LOS		D			D			A			D	

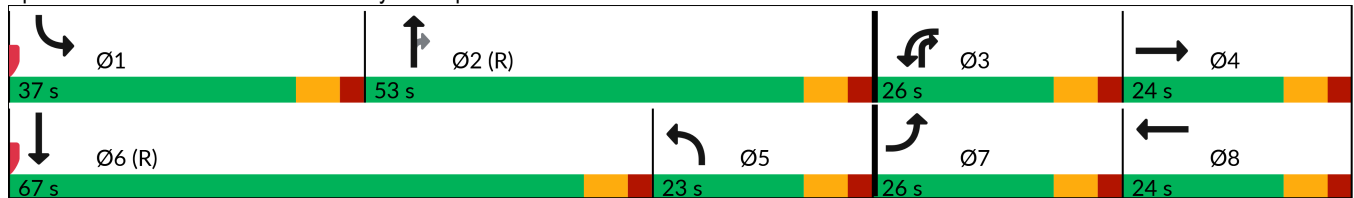
Lanes, Volumes, Timings
2: Veterans Pkwy & Shepard Rd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
90th %ile Green (s)	7.6	17.0		19.0	28.4		16.0	46.0	19.0	30.0	60.0	
90th %ile Term Code	Gap	Ped		Max	Ped		Hold	Coord	Max	Max	Coord	
70th %ile Green (s)	6.4	8.9		19.0	21.5		16.0	50.4	19.0	33.7	68.1	
70th %ile Term Code	Gap	Gap		Max	Hold		Hold	Coord	Max	Gap	Coord	
50th %ile Green (s)	0.0	7.0		19.0	33.0		16.0	55.8	19.0	30.2	70.0	
50th %ile Term Code	Skip	Min		Max	Hold		Hold	Coord	Max	Gap	Coord	
30th %ile Green (s)	0.0	7.0		17.6	31.6		16.0	60.8	17.6	26.6	71.4	
30th %ile Term Code	Skip	Min		Gap	Hold		Hold	Coord	Gap	Gap	Coord	
10th %ile Green (s)	0.0	7.0		14.6	28.6		0.0	69.2	14.6	21.2	97.4	
10th %ile Term Code	Skip	Min		Gap	Hold		Skip	Coord	Gap	Gap	Coord	
Queue Length 50th (ft)	14	13		166	11		32	93	4	271	248	
Queue Length 95th (ft)	38	62		#233	112		m36	m303	m0	#425	352	
Internal Link Dist (ft)		382			1412			2443			3215	
Turn Bay Length (ft)	160			250			250		450	455		
Base Capacity (vph)	236	247		454	603		199	1379	1090	379	1804	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.06	0.31		0.80	0.63		0.23	0.75	0.40	0.82	0.45	

























Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 116 (83%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 145
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay (s/veh): 27.0 Intersection LOS: C
 Intersection Capacity Utilization 84.8% ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Veterans Pkwy & Shepard Rd



Lanes, Volumes, Timings
3: Veterans Pkwy & Fort Jesse Rd

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	185	415	280	135	445	120	435	1175	150	145	825	205
Future Volume (vph)	185	415	280	135	445	120	435	1175	150	145	825	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	110		225	175		200	245		255	345		575
Storage Lanes	1		1	1		1	2		1	1		0
Taper Length (ft)	190			160			250			205		
Satd. Flow (prot)	1711	3490	1561	1745	3490	1516	3385	3421	1561	1694	3358	0
Flt Permitted	0.218			0.421			0.950			0.950		
Satd. Flow (perm)	393	3490	1561	773	3490	1516	3385	3421	1561	1694	3358	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			292			195			118			21
Link Speed (mph)		35			30			45				45
Link Distance (ft)		2482			760			1379				2523
Travel Time (s)		48.4			17.3			20.9				38.2
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	0%	0%	0%	0%	3%	0%	2%	0%	3%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	193	432	292	141	464	125	453	1224	156	151	1073	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases	4		4	8		8			2			
Detector Phase	7	4	4	3	8	8	5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	5.0	7.0	7.0	5.0	7.0	7.0	5.0	15.0	5.0	5.0	15.0	
Minimum Split (s)	12.0	43.0	43.0	12.0	43.0	43.0	12.0	42.0	12.0	12.0	42.0	
Total Split (s)	23.0	42.0	42.0	17.0	36.0	36.0	39.0	54.0	17.0	27.0	42.0	
Total Split (%)	16.4%	30.0%	30.0%	12.1%	25.7%	25.7%	27.9%	38.6%	12.1%	19.3%	30.0%	
Maximum Green (s)	16.0	35.0	35.0	10.0	29.0	29.0	32.0	47.0	10.0	20.0	35.0	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0	3.0	3.0	5.5	2.0	2.0	5.5	
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	
Flash Don't Walk (s)		29.0	29.0		26.0	26.0		28.0			28.0	
Pedestrian Calls (#/hr)		5	5		5	5		5			5	
Act Effct Green (s)	44.3	29.5	29.5	34.1	24.4	24.4	24.0	52.8	62.5	20.0	48.9	
Actuated g/C Ratio	0.32	0.21	0.21	0.24	0.17	0.17	0.17	0.38	0.45	0.14	0.35	
v/c Ratio	0.73	0.59	0.52	0.55	0.76	0.29	0.78	0.95	0.20	0.62	0.91	
Control Delay (s/veh)	51.4	52.6	8.0	43.1	63.5	2.0	55.9	26.8	0.8	52.6	41.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	51.4	52.6	8.0	43.1	63.5	2.0	55.9	26.8	0.8	52.6	41.4	
LOS	D	D	A	D	E	A	E	C	A	D	D	
Approach Delay (s/veh)		38.2			49.0			31.8			42.8	
Approach LOS		D			D			C			D	

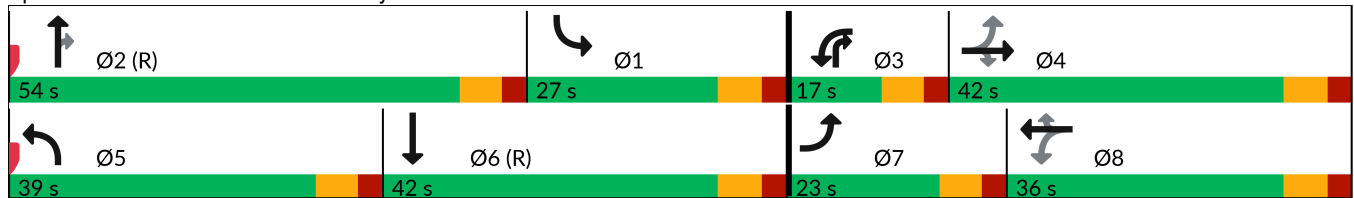
Lanes, Volumes, Timings
 3: Veterans Pkwy & Fort Jesse Rd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
90th %ile Green (s)	16.0	35.0	35.0	10.0	29.0	29.0	29.5	47.0	10.0	20.0	37.5	
90th %ile Term Code	Max	Ped	Ped	Max	Ped	Ped	Gap	Coord	Max	Max	Coord	
70th %ile Green (s)	16.0	33.6	33.6	10.0	27.6	27.6	26.3	48.4	10.0	20.0	42.1	
70th %ile Term Code	Max	Hold	Hold	Max	Gap	Gap	Gap	Coord	Max	Hold	Coord	
50th %ile Green (s)	16.0	30.6	30.6	10.0	24.6	24.6	24.0	51.4	10.0	20.0	47.4	
50th %ile Term Code	Max	Hold	Hold	Max	Gap	Gap	Gap	Coord	Max	Hold	Coord	
30th %ile Green (s)	14.7	27.1	27.1	10.0	22.4	22.4	21.7	54.9	10.0	20.0	53.2	
30th %ile Term Code	Gap	Hold	Hold	Max	Gap	Gap	Gap	Coord	Max	Hold	Coord	
10th %ile Green (s)	11.3	21.1	21.1	8.5	18.3	18.3	18.3	62.4	8.5	20.0	64.1	
10th %ile Term Code	Gap	Hold	Hold	Gap	Gap	Gap	Gap	Coord	Gap	Hold	Coord	
Queue Length 50th (ft)	130	186	0	92	214	0	178	415	3	136	511	
Queue Length 95th (ft)	189	233	76	141	266	1	m167	m#670	m10	m174	#725	
Internal Link Dist (ft)		2402			680			1299			2443	
Turn Bay Length (ft)	110		225	175		200	245		255	345		
Base Capacity (vph)	277	872	609	259	722	468	773	1290	765	242	1185	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.50	0.48	0.54	0.64	0.27	0.59	0.95	0.20	0.62	0.91	



























Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 113 (81%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 120
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay (s/veh): 38.6 Intersection LOS: D
 Intersection Capacity Utilization 87.6% ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Veterans Pkwy & Fort Jesse Rd



Lanes, Volumes, Timings
4: Veterans Pkwy & Parkway Plaza

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				 				 			 	
Traffic Volume (vph)	75	100	90	335	75	245	55	1440	380	150	1055	35
Future Volume (vph)	75	100	90	335	75	245	55	1440	380	150	1055	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	90		130	0		0	515		545	505		530
Storage Lanes	1		1	2		0	1		1	1		0
Taper Length (ft)	105			25			235			205		
Satd. Flow (prot)	1728	1766	1561	3385	1607	0	1678	3455	1561	1745	3436	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1728	1766	1535	3362	1607	0	1678	3455	1526	1744	3436	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			195		109				312			3
Link Speed (mph)		30			30			45				45
Link Distance (ft)		2051			383			1295				1379
Travel Time (s)		46.6			8.7			19.6				20.9
Confl. Peds. (#/hr)			4	4					1	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	4%	0%	0%	5%	0%	4%	1%	0%	0%	1%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	79	105	95	353	337	0	58	1516	400	158	1148	0
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4	5	3	8		5	2	3	1	6	
Permitted Phases			4						2			
Detector Phase	7	4	5	3	8		5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0		5.0	15.0	5.0	5.0	15.0	
Minimum Split (s)	12.0	43.0	12.0	12.0	43.0		12.0	36.0	12.0	12.0	36.0	
Total Split (s)	15.0	29.0	21.0	25.0	39.0		21.0	67.0	25.0	19.0	65.0	
Total Split (%)	10.7%	20.7%	15.0%	17.9%	27.9%		15.0%	47.9%	17.9%	13.6%	46.4%	
Maximum Green (s)	8.0	22.0	14.0	18.0	32.0		14.0	60.0	18.0	12.0	58.0	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5		2.5	2.5	2.5	2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0		2.0	5.5	2.0	2.0	5.5	
Recall Mode	None	None	None	None	None		None	C-Max	None	None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		29.0			26.0			22.0			22.0	
Pedestrian Calls (#/hr)		5			5			5			5	
Act Effct Green (s)	7.9	16.2	30.2	17.1	25.5		14.0	62.2	79.3	16.5	64.7	
Actuated g/C Ratio	0.06	0.12	0.22	0.12	0.18		0.10	0.44	0.57	0.12	0.46	
v/c Ratio	0.82	0.51	0.20	0.85	0.88		0.35	0.99	0.40	0.77	0.72	
Control Delay (s/veh)	116.6	65.9	0.9	79.8	61.5		36.5	27.0	0.6	60.3	32.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	116.6	65.9	0.9	79.8	61.5		36.5	27.0	0.6	60.3	32.9	
LOS	F	E	A	E	E		D	C	A	E	C	
Approach Delay (s/veh)		58.1			70.9			22.0			36.3	

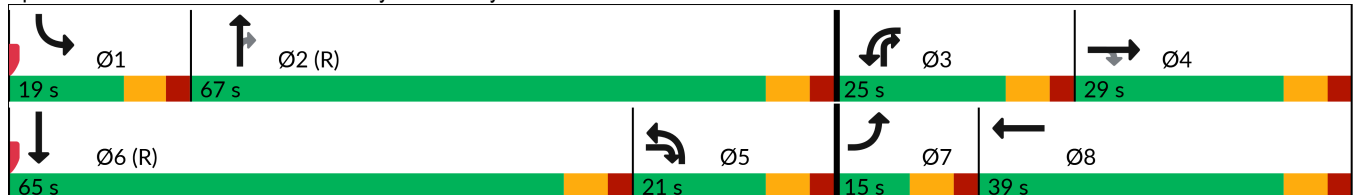
Lanes, Volumes, Timings
4: Veterans Pkwy & Parkway Plaza

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	E			E			C			D		
90th %ile Green (s)	8.0	22.0	14.0	18.0	32.0		14.0	60.0	18.0	12.0	58.0	
90th %ile Term Code	Max	Ped	Hold	Max	Ped		Hold	Coord	Max	Max	Coord	
70th %ile Green (s)	8.0	21.0	14.0	18.0	31.0		14.0	60.0	18.0	13.0	59.0	
70th %ile Term Code	Max	Hold	Hold	Max	Gap		Hold	Coord	Max	Max	Coord	
50th %ile Green (s)	8.0	16.6	14.0	18.0	26.6		14.0	60.0	18.0	17.4	63.4	
50th %ile Term Code	Max	Hold	Hold	Max	Gap		Hold	Coord	Max	Max	Coord	
30th %ile Green (s)	8.0	12.9	14.0	17.2	22.1		14.0	61.9	17.2	20.0	67.9	
30th %ile Term Code	Max	Hold	Hold	Gap	Gap		Hold	Coord	Gap	Gap	Coord	
10th %ile Green (s)	7.3	8.6	14.0	14.3	15.6		14.0	69.2	14.3	19.9	75.1	
10th %ile Term Code	Gap	Hold	Hold	Gap	Gap		Hold	Coord	Gap	Gap	Coord	
Queue Length 50th (ft)	72	91	0	163	209		44	~766	0	143	544	
Queue Length 95th (ft)	#167	147	0	#235	318		m50	m#496	m2	m#237	m621	
Internal Link Dist (ft)		1971			303			1215			1299	
Turn Bay Length (ft)	90		130				515		545	505		
Base Capacity (vph)	98	277	486	435	451		167	1535	1011	205	1589	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.81	0.38	0.20	0.81	0.75		0.35	0.99	0.40	0.77	0.72	































Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 61 (44%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 145
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.99
 Intersection Signal Delay (s/veh): 36.7 Intersection LOS: D
 Intersection Capacity Utilization 94.6% ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Veterans Pkwy & Parkway Plaza



Lanes, Volumes, Timings
5: Veterans Pkwy & E College Ave

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 		 	 		 		
Traffic Volume (vph)	225	640	300	205	470	110	310	1540	220	130	1165	185
Future Volume (vph)	225	640	300	205	470	110	310	1540	220	130	1165	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	140		315	110		135	415		455	415		505
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (ft)	190			230			230			225		
Satd. Flow (prot)	3385	3490	1561	3385	3490	1561	3385	3455	1546	3385	3455	1561
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3385	3490	1561	3385	3490	1561	3385	3455	1546	3385	3455	1561
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			140			140			86			86
Link Speed (mph)		30			35			45			45	
Link Distance (ft)		2753			778			1447			1295	
Travel Time (s)		62.6			15.2			21.9			19.6	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	1%	0%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	239	681	319	218	500	117	330	1638	234	138	1239	197
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	9.0	5.0	5.0	9.0	5.0	5.0	10.0	5.0	5.0	10.0	5.0
Minimum Split (s)	12.0	43.0	12.0	12.0	43.0	12.0	12.0	42.0	12.0	12.0	42.0	12.0
Total Split (s)	25.0	39.0	36.0	20.0	34.0	13.0	36.0	68.0	20.0	13.0	45.0	25.0
Total Split (%)	17.9%	27.9%	25.7%	14.3%	24.3%	9.3%	25.7%	48.6%	14.3%	9.3%	32.1%	17.9%
Maximum Green (s)	18.0	32.0	29.0	13.0	27.0	6.0	29.0	61.0	13.0	6.0	38.0	18.0
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		29.0			29.0			28.0			28.0	
Pedestrian Calls (#/hr)		5			5			5			5	
Act Effct Green (s)	14.1	30.8	55.8	12.0	28.7	34.7	18.0	63.2	75.2	6.0	51.1	72.3
Actuated g/C Ratio	0.10	0.22	0.40	0.09	0.21	0.25	0.13	0.45	0.54	0.04	0.37	0.52
v/c Ratio	0.70	0.89	0.45	0.75	0.70	0.24	0.76	1.05	0.27	0.95	0.98	0.23
Control Delay (s/veh)	71.8	67.3	17.9	78.7	57.7	3.4	70.8	54.3	2.5	101.6	46.3	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	71.8	67.3	17.9	78.7	57.7	3.4	70.8	54.3	2.5	101.6	46.3	8.4
LOS	E	E	B	E	E	A	E	D	A	F	D	A
Approach Delay (s/veh)		55.5			55.5			51.2			46.4	
Approach LOS		E			E			D			D	

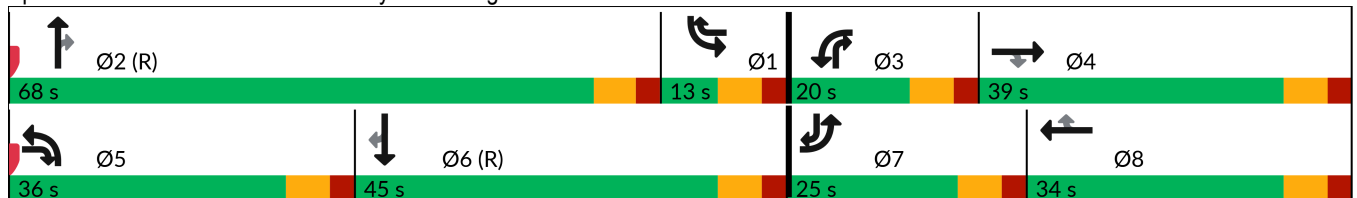
Lanes, Volumes, Timings
5: Veterans Pkwy & E College Ave

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
90th %ile Green (s)	18.0	32.0	22.9	13.0	27.0	6.0	22.9	61.0	13.0	6.0	44.1	18.0
90th %ile Term Code	Max	Ped	Gap	Max	Ped	Max	Gap	Coord	Max	Max	Coord	Max
70th %ile Green (s)	15.9	32.0	20.0	13.0	29.1	6.0	20.0	61.0	13.0	6.0	47.0	15.9
70th %ile Term Code	Gap	Max	Gap	Max	Hold	Max	Gap	Coord	Max	Max	Coord	Gap
50th %ile Green (s)	14.2	32.0	18.0	13.0	30.8	6.0	18.0	61.0	13.0	6.0	49.0	14.2
50th %ile Term Code	Gap	Max	Gap	Max	Hold	Max	Gap	Coord	Max	Max	Coord	Gap
30th %ile Green (s)	12.5	30.9	16.1	11.8	30.2	6.0	16.1	63.3	11.8	6.0	53.2	12.5
30th %ile Term Code	Gap	Gap	Gap	Gap	Hold	Max	Gap	Coord	Gap	Max	Coord	Gap
10th %ile Green (s)	10.1	27.1	13.2	9.4	26.4	6.0	13.2	69.5	9.4	6.0	62.3	10.1
10th %ile Term Code	Gap	Gap	Gap	Gap	Hold	Max	Gap	Coord	Gap	Max	Coord	Gap
Queue Length 50th (ft)	110	315	113	101	220	0	141	~867	13	68	~644	26
Queue Length 95th (ft)	152	#400	185	146	293	23	m145	m#971	m15	m#110	#818	m45
Internal Link Dist (ft)		2673			698			1367			1215	
Turn Bay Length (ft)	140		315	110		135	415		455	415		505
Base Capacity (vph)	435	797	818	314	718	492	701	1558	880	145	1261	887
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.85	0.39	0.69	0.70	0.24	0.47	1.05	0.27	0.95	0.98	0.22

























Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 58 (41%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.05
 Intersection Signal Delay (s/veh): 51.4 Intersection LOS: D
 Intersection Capacity Utilization 93.6% ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Veterans Pkwy & E College Ave



Lanes, Volumes, Timings
6: Veterans Pkwy & Von Maur Dr/Jumer Dr

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	90	290	160	100	45	320	1935	195	30	1540	100
Future Volume (vph)	90	90	290	160	100	45	320	1935	195	30	1540	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	90		120	145		225	555		695	530		590
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (ft)	80			115			220			250		
Satd. Flow (prot)	1745	3421	1546	3385	1766	1531	3385	3455	1561	1745	3455	1561
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1745	3421	1546	3385	1766	1531	3385	3455	1561	1745	3455	1561
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			140			140			199			102
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		275			1066			1370			1447	
Travel Time (s)		6.3			24.2			20.8			21.9	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	2%	1%	0%	4%	2%	0%	1%	0%	0%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	92	92	296	163	102	46	327	1974	199	31	1571	102
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0	5.0	5.0	10.0	5.0	5.0	10.0	5.0
Minimum Split (s)	12.0	43.0	12.0	12.0	43.0	12.0	12.0	39.0	12.0	12.0	39.0	12.0
Total Split (s)	18.0	16.0	36.0	22.0	20.0	15.0	36.0	87.0	22.0	15.0	66.0	18.0
Total Split (%)	12.9%	11.4%	25.7%	15.7%	14.3%	10.7%	25.7%	62.1%	15.7%	10.7%	47.1%	12.9%
Maximum Green (s)	11.0	9.0	29.0	15.0	13.0	8.0	29.0	80.0	15.0	8.0	59.0	11.0
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		29.0			29.0			25.0			25.0	
Pedestrian Calls (#/hr)		5			5			5			5	
Act Effct Green (s)	10.4	10.2	36.3	12.0	11.7	24.8	19.1	84.8	98.2	7.5	70.7	81.1
Actuated g/C Ratio	0.07	0.07	0.26	0.09	0.08	0.18	0.14	0.61	0.70	0.05	0.51	0.58
v/c Ratio	0.71	0.37	0.59	0.56	0.69	0.12	0.71	0.94	0.17	0.33	0.90	0.11
Control Delay (s/veh)	91.3	66.3	27.6	68.9	85.9	0.6	71.9	21.0	1.2	83.7	46.6	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	91.3	66.3	27.6	68.9	85.9	0.6	71.9	21.0	1.2	83.7	46.6	4.8
LOS	F	E	C	E	F	A	E	C	A	F	D	A
Approach Delay (s/veh)		47.2			64.4			26.1			44.8	
Approach LOS		D			E			C			D	

Lanes, Volumes, Timings

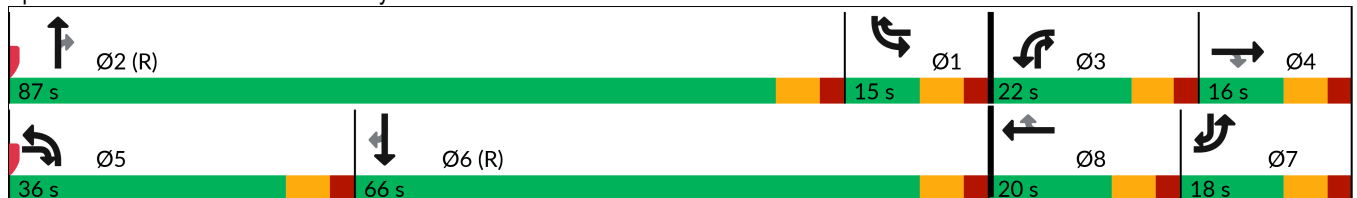
6: Veterans Pkwy & Von Maur Dr/Jumer Dr

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
90th %ile Green (s)	11.0	9.0	24.4	15.0	13.0	8.0	24.4	80.0	15.0	8.0	63.6	11.0
90th %ile Term Code	Max	Ped	Gap	Max	Ped	Max	Gap	Coord	Max	Max	Coord	Max
70th %ile Green (s)	11.0	10.6	21.6	13.4	13.0	8.0	21.6	80.0	13.4	8.0	66.4	11.0
70th %ile Term Code	Max	Hold	Gap	Gap	Max	Max	Gap	Coord	Gap	Max	Coord	Max
50th %ile Green (s)	11.0	11.9	18.8	12.1	13.0	8.0	18.8	80.0	12.1	8.0	69.2	11.0
50th %ile Term Code	Max	Hold	Gap	Gap	Max	Hold	Gap	Coord	Gap	Hold	Coord	Max
30th %ile Green (s)	11.0	11.7	16.8	10.7	11.4	8.0	16.8	81.6	10.7	8.0	72.8	11.0
30th %ile Term Code	Gap	Hold	Gap	Gap	Gap	Hold	Gap	Coord	Gap	Hold	Coord	Gap
10th %ile Green (s)	8.1	7.7	14.0	8.7	8.3	0.0	14.0	102.6	8.7	0.0	81.6	8.1
10th %ile Term Code	Gap	Hold	Gap	Gap	Gap	Skip	Gap	Coord	Gap	Skip	Coord	Gap
Queue Length 50th (ft)	83	42	122	74	91	0	162	~518	12	25	581	17
Queue Length 95th (ft)	#163	74	216	110	#161	0	m156	m397	m11	m31	m#815	m28
Internal Link Dist (ft)		195			986			1290			1367	
Turn Bay Length (ft)	90		120	145		225	555		695	530		590
Base Capacity (vph)	137	254	603	362	163	405	701	2093	1184	99	1745	953
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.67	0.36	0.49	0.45	0.63	0.11	0.47	0.94	0.17	0.31	0.90	0.11

























Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 28 (20%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.94
 Intersection Signal Delay (s/veh): 36.9 Intersection LOS: D
 Intersection Capacity Utilization 86.8% ICU Level of Service E
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Veterans Pkwy & Von Maur Dr/Jumer Dr



Lanes, Volumes, Timings
 7: Veterans Pkwy & E Vernon Ave/General Electric Rd

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	260	455	365	155	340	185	270	2005	155	140	1620	230
Future Volume (vph)	260	455	365	155	340	185	270	2005	155	140	1620	230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	235		140	180		160	530		590	400		685
Storage Lanes	1		1	2		1	2		1	2		1
Taper Length (ft)	80			150			230			210		
Satd. Flow (prot)	3385	3490	1546	3385	3490	1531	3385	3455	1546	3351	3455	1561
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3385	3490	1546	3385	3490	1531	3385	3455	1546	3351	3455	1561
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			140			140			140			140
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		379			486			2185			1370	
Travel Time (s)		8.6			11.0			33.1			20.8	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	1%	0%	0%	2%	0%	1%	1%	1%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	271	474	380	161	354	193	281	2089	161	146	1688	240
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0	5.0	5.0	10.0	5.0	5.0	10.0	5.0
Minimum Split (s)	12.0	43.0	12.0	12.0	43.0	12.0	12.0	42.0	12.0	12.0	42.0	12.0
Total Split (s)	18.0	28.0	19.0	14.0	24.0	13.0	19.0	85.0	14.0	13.0	79.0	18.0
Total Split (%)	12.9%	20.0%	13.6%	10.0%	17.1%	9.3%	13.6%	60.7%	10.0%	9.3%	56.4%	12.9%
Maximum Green (s)	11.0	21.0	12.0	7.0	17.0	6.0	12.0	78.0	7.0	6.0	72.0	11.0
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lead	Lead	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	2.0	2.5	1.0	2.0	2.0	2.5	4.5	1.0	2.0	4.5	1.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		29.0			29.0			28.0			28.0	
Pedestrian Calls (#/hr)		5			5			5			5	
Act Effct Green (s)	11.6	21.0	33.0	7.0	16.4	22.4	12.0	78.0	92.0	6.0	72.0	90.6
Actuated g/C Ratio	0.08	0.15	0.24	0.05	0.12	0.16	0.09	0.56	0.66	0.04	0.51	0.65
v/c Ratio	0.97	0.91	0.81	0.95	0.87	0.53	0.97	1.09	0.15	1.02	0.95	0.23
Control Delay (s/veh)	110.6	80.3	39.5	123.1	81.6	16.5	58.8	57.0	0.0	119.5	51.2	11.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	110.6	80.3	39.5	123.1	81.6	16.5	58.8	57.0	0.0	119.5	51.2	11.5
LOS	F	F	D	F	F	B	E	E	A	F	D	B
Approach Delay (s/veh)		73.8			73.3			53.6			51.4	
Approach LOS		E			E			D			D	

Lanes, Volumes, Timings

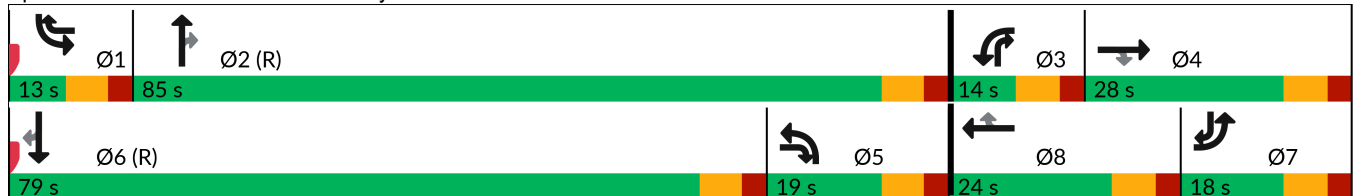
7: Veterans Pkwy & E Vernon Ave/General Electric Rd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
90th %ile Green (s)	11.0	21.0	12.0	7.0	17.0	6.0	12.0	78.0	7.0	6.0	72.0	11.0
90th %ile Term Code	Max	Ped	Max	Max	Ped	Max	Max	Coord	Max	Max	Coord	Max
70th %ile Green (s)	11.0	21.0	12.0	7.0	17.0	6.0	12.0	78.0	7.0	6.0	72.0	11.0
70th %ile Term Code	Max	Max	Max	Max	Max	Max	Max	Coord	Max	Max	Coord	Max
50th %ile Green (s)	11.0	21.0	12.0	7.0	17.0	6.0	12.0	78.0	7.0	6.0	72.0	11.0
50th %ile Term Code	Max	Max	Max	Max	Max	Max	Max	Coord	Max	Max	Coord	Max
30th %ile Green (s)	11.0	21.0	12.0	7.0	17.0	6.0	12.0	78.0	7.0	6.0	72.0	11.0
30th %ile Term Code	Max	Max	Max	Max	Max	Max	Max	Coord	Max	Max	Coord	Max
10th %ile Green (s)	13.8	21.0	12.0	7.0	14.2	6.0	12.0	78.0	7.0	6.0	72.0	13.8
10th %ile Term Code	Max	Hold	Max	Max	Gap	Max	Max	Coord	Max	Max	Coord	Max
Queue Length 50th (ft)	~134	226	169	76	168	33	130	~1110	0	~74	671	87
Queue Length 95th (ft)	#227	#326	#300	#151	#246	94	m128	m#1012	m0	m#105	#917	m107
Internal Link Dist (ft)		299			406			2105			1290	
Turn Bay Length (ft)	235		140	180		160	530		590	400		685
Base Capacity (vph)	279	523	471	169	423	362	290	1924	1063	143	1776	1059
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.97	0.91	0.81	0.95	0.84	0.53	0.97	1.09	0.15	1.02	0.95	0.23

















Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 20 (14%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.09
 Intersection Signal Delay (s/veh): 58.6 Intersection LOS: E
 Intersection Capacity Utilization 99.9% ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Veterans Pkwy & E Vernon Ave/General Electric Rd



Lanes, Volumes, Timings
 8: Veterans Pkwy & Clearwater Ave

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	 		 		 	 
Traffic Volume (vph)	210	350	2080	280	320	1820
Future Volume (vph)	210	350	2080	280	320	1820
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	335		560	380	
Storage Lanes	2	1		1	2	
Taper Length (ft)	25				240	
Satd. Flow (prot)	3351	1546	3455	1561	3385	3455
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3330	1546	3455	1540	3385	3455
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		6		19		
Link Speed (mph)	30		45			45
Link Distance (ft)	2913		2570			2185
Travel Time (s)	66.2		38.9			33.1
Confl. Peds. (#/hr)	5			1	1	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	1%	1%	0%	0%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	223	372	2213	298	340	1936
Turn Type	Prot	pt+ov	NA	pm+ov	Prot	NA
Protected Phases	3	1 3	2	3	1	6
Permitted Phases		3		2		
Detector Phase	3	1 3	2	3	1	6
Switch Phase						
Minimum Initial (s)	8.0		10.0	8.0	6.0	10.0
Minimum Split (s)	40.0		36.0	40.0	13.0	17.0
Total Split (s)	28.0		89.0	28.0	23.0	112.0
Total Split (%)	20.0%		63.6%	20.0%	16.4%	80.0%
Maximum Green (s)	21.0		82.0	21.0	16.0	105.0
Yellow Time (s)	4.5		4.5	4.5	4.5	4.5
All-Red Time (s)	2.5		2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0		7.0	7.0	7.0	7.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	4.0		3.0	4.0	2.0	3.0
Recall Mode	None		C-Max	None	None	C-Max
Walk Time (s)	7.0		7.0	7.0		
Flash Don't Walk (s)	26.0		22.0	26.0		
Pedestrian Calls (#/hr)	5		5	5		
Act Effct Green (s)	19.2	42.2	83.8	103.0	16.0	106.8
Actuated g/C Ratio	0.14	0.30	0.60	0.74	0.11	0.76
v/c Ratio	0.49	0.79	1.07	0.26	0.88	0.73
Control Delay (s/veh)	59.2	57.2	62.8	2.5	64.0	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	59.2	57.2	62.8	2.5	64.0	9.3
LOS	E	E	E	A	E	A
Approach Delay (s/veh)	58.0		55.6			17.5

Lanes, Volumes, Timings
 8: Veterans Pkwy & Clearwater Ave

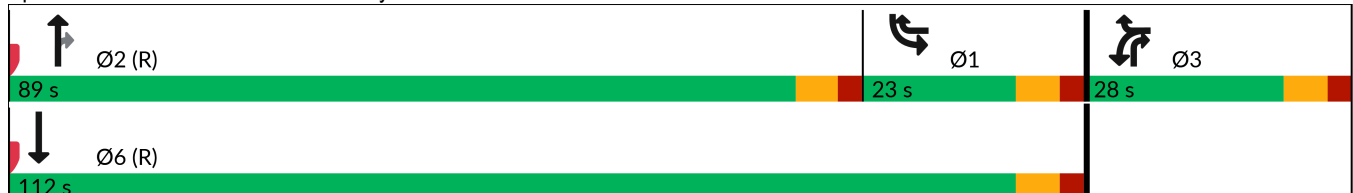


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Approach LOS	E		E		B	
90th %ile Green (s)	21.0		82.0	21.0	16.0	105.0
90th %ile Term Code	Ped		Coord	Ped	Max	Coord
70th %ile Green (s)	21.0		82.0	21.0	16.0	105.0
70th %ile Term Code	Max		Coord	Max	Max	Coord
50th %ile Green (s)	21.0		82.0	21.0	16.0	105.0
50th %ile Term Code	Max		Coord	Max	Max	Coord
30th %ile Green (s)	20.1		82.9	20.1	16.0	105.9
30th %ile Term Code	Gap		Coord	Gap	Max	Coord
10th %ile Green (s)	12.8		90.2	12.8	16.0	113.2
10th %ile Term Code	Gap		Coord	Gap	Max	Coord
Queue Length 50th (ft)	96	301	~1165	7	152	332
Queue Length 95th (ft)	139	429	#1304	51	m169	m366
Internal Link Dist (ft)	2833		2490		2105	
Turn Bay Length (ft)	335		560		380	
Base Capacity (vph)	502	490	2068	1158	386	2636
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.76	1.07	0.26	0.88	0.73

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.07
 Intersection Signal Delay (s/veh): 39.7 Intersection LOS: D
 Intersection Capacity Utilization 90.8% ICU Level of Service E
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: Veterans Pkwy & Clearwater Ave



Lanes, Volumes, Timings
 9: Veterans Pkwy & Empire Street North Junction



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	240	0	0	2120	1775	255
Future Volume (vph)	240	0	0	2120	1775	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0			480
Storage Lanes	2	0	0			1
Taper Length (ft)	25		25			
Satd. Flow (prot)	3385	0	0	4964	7365	1561
Flt Permitted	0.950					
Satd. Flow (perm)	3385	0	0	4964	7365	1561
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						
Link Speed (mph)	35			45	45	
Link Distance (ft)	383			530	2570	
Travel Time (s)	7.5			8.0	38.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	1%	1%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	250	0	0	2208	1849	266
Turn Type	Prot			NA	NA	pm+ov
Protected Phases	3			2	6	3
Permitted Phases						6
Detector Phase	3			2	6	3
Switch Phase						
Minimum Initial (s)	8.0			15.0	15.0	8.0
Minimum Split (s)	20.0			22.0	22.0	20.0
Total Split (s)	52.0			88.0	88.0	52.0
Total Split (%)	37.1%			62.9%	62.9%	37.1%
Maximum Green (s)	45.0			81.0	81.0	45.0
Yellow Time (s)	4.5			4.5	4.5	4.5
All-Red Time (s)	2.5			2.5	2.5	2.5
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	7.0			7.0	7.0	7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Recall Mode	None			C-Max	C-Max	None
Act Effct Green (s)	15.8			110.2	110.2	140.0
Actuated g/C Ratio	0.11			0.79	0.79	1.00
v/c Ratio	0.66			0.56	0.32	0.17
Control Delay (s/veh)	54.4			4.1	2.2	0.2
Queue Delay	0.0			0.1	0.0	0.0
Total Delay (s/veh)	54.4			4.2	2.2	0.2
LOS	D			A	A	A
Approach Delay (s/veh)	54.4			4.2	1.9	
Approach LOS	D			A	A	
90th %ile Green (s)	20.1			105.9	105.9	20.1
90th %ile Term Code	Gap			Coord	Coord	Gap
70th %ile Green (s)	17.5			108.5	108.5	17.5

Lanes, Volumes, Timings
 9: Veterans Pkwy & Empire Street North Junction



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
70th %ile Term Code	Gap			Coord	Coord	Gap
50th %ile Green (s)	15.8			110.2	110.2	15.8
50th %ile Term Code	Gap			Coord	Coord	Gap
30th %ile Green (s)	14.0			112.0	112.0	14.0
30th %ile Term Code	Gap			Coord	Coord	Gap
10th %ile Green (s)	11.5			114.5	114.5	11.5
10th %ile Term Code	Gap			Coord	Coord	Gap
Queue Length 50th (ft)	125			120	45	0
Queue Length 95th (ft)	172			165	49	0
Internal Link Dist (ft)	303			450	2490	
Turn Bay Length (ft)						480
Base Capacity (vph)	1088			3908	5798	1561
Starvation Cap Reductn	0			480	0	0
Spillback Cap Reductn	0			0	11	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.23			0.64	0.32	0.17

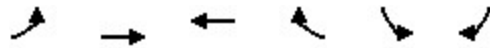
Intersection Summary

Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Offset:	63 (45%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
Natural Cycle:	55
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.66
Intersection Signal Delay (s/veh):	5.9
Intersection LOS:	A
Intersection Capacity Utilization:	59.5%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 9: Veterans Pkwy & Empire Street North Junction



Lanes, Volumes, Timings
 10: E Empire St & Veterans Parkway West Junction



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔↔	↑↑↑	↑↑			↔↔
Traffic Volume (vph)	240	1045	890	0	0	255
Future Volume (vph)	240	1045	890	0	0	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	245			0	0	0
Storage Lanes	2			0	0	2
Taper Length (ft)	165				25	
Satd. Flow (prot)	3385	4964	3455	0	0	2748
Flt Permitted	0.950					
Satd. Flow (perm)	3385	4964	3455	0	0	2748
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)						168
Link Speed (mph)		35	35		35	
Link Distance (ft)		2754	530		355	
Travel Time (s)		53.6	10.3		6.9	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	1%	1%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	258	1124	957	0	0	274
Turn Type	Prot	NA	NA			Over
Protected Phases	7	2 7	2			7
Permitted Phases						
Detector Phase	7	2 7	2			7
Switch Phase						
Minimum Initial (s)	8.0		15.0			8.0
Minimum Split (s)	21.0		22.4			21.0
Total Split (s)	60.0		80.0			60.0
Total Split (%)	42.9%		57.1%			42.9%
Maximum Green (s)	53.0		73.0			53.0
Yellow Time (s)	4.5		4.5			4.5
All-Red Time (s)	2.5		2.5			2.5
Lost Time Adjust (s)	0.0		0.0			0.0
Total Lost Time (s)	7.0		7.0			7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0		2.0			2.0
Recall Mode	None		C-Max			None
Act Effct Green (s)	21.8	140.0	104.2			21.8
Actuated g/C Ratio	0.16	1.00	0.74			0.16
v/c Ratio	0.49	0.23	0.37			0.48
Control Delay (s/veh)	56.2	0.1	0.5			29.5
Queue Delay	0.0	0.0	0.1			0.0
Total Delay (s/veh)	56.2	0.1	0.6			29.5
LOS	E	A	A			C
Approach Delay (s/veh)		10.6	0.6		29.5	
Approach LOS		B	A		C	
90th %ile Green (s)	30.3		95.7			30.3
90th %ile Term Code	Gap		Coord			Gap
70th %ile Green (s)	25.2		100.8			25.2

Lanes, Volumes, Timings
 10: E Empire St & Veterans Parkway West Junction



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
70th %ile Term Code	Gap		Coord			Gap
50th %ile Green (s)	21.7		104.3			21.7
50th %ile Term Code	Gap		Coord			Gap
30th %ile Green (s)	18.1		107.9			18.1
30th %ile Term Code	Gap		Coord			Gap
10th %ile Green (s)	13.7		112.3			13.7
10th %ile Term Code	Gap		Coord			Gap
Queue Length 50th (ft)	112	0	2			63
Queue Length 95th (ft)	146	0	3			100
Internal Link Dist (ft)		2674	450		275	
Turn Bay Length (ft)	245					
Base Capacity (vph)	1281	4964	2571			1144
Starvation Cap Reductn	0	0	522			0
Spillback Cap Reductn	0	161	0			0
Storage Cap Reductn	0	0	0			0
Reduced v/c Ratio	0.20	0.23	0.47			0.24













Intersection Summary

Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Offset:	10 (7%), Referenced to phase 2:EBWB, Start of 1st Green
Natural Cycle:	45
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.49
Intersection Signal Delay (s/veh):	8.9
Intersection LOS:	A
Intersection Capacity Utilization:	45.2%
ICU Level of Service:	A
Analysis Period (min):	15

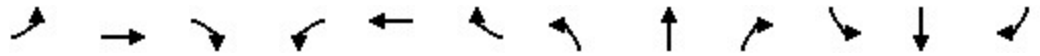
Splits and Phases: 10: E Empire St & Veterans Parkway West Junction



Lanes, Volumes, Timings
 11: Veterans Pkwy & E Empire St

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗	↘↘	↑↑↑		↘↘	↑↑↑	
Traffic Volume (vph)	0	900	210	0	715	290	175	1830	0	240	1535	0
Future Volume (vph)	0	900	210	0	715	290	175	1830	0	240	1535	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	3455	1531	0	3455	1531	3351	4964	0	3385	4964	0
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	3455	1531	0	3455	1531	3351	4964	0	3385	4964	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			86			86						
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		530			509			475			530	
Travel Time (s)		10.3			9.9			7.2			8.0	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	1%	2%	0%	1%	2%	1%	1%	0%	0%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	947	221	0	753	305	184	1926	0	253	1616	0
Turn Type		NA	pm+ov		NA	pm+ov	Prot	NA		Prot	NA	
Protected Phases		4	5		8	1	5	2		1	6	
Permitted Phases			4			8						
Detector Phase		4	5		8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)		15.0	5.0		15.0	5.0	5.0	15.0		5.0	15.0	
Minimum Split (s)		22.0	19.0		22.0	12.0	19.0	22.0		12.0	22.0	
Total Split (s)		51.0	17.0		51.0	20.0	17.0	69.0		20.0	72.0	
Total Split (%)		36.4%	12.1%		36.4%	14.3%	12.1%	49.3%		14.3%	51.4%	
Maximum Green (s)		44.0	10.0		44.0	13.0	10.0	62.0		13.0	65.0	
Yellow Time (s)		4.5	4.5		4.5	4.5	4.5	4.5		4.5	4.5	
All-Red Time (s)		2.5	2.5		2.5	2.5	2.5	2.5		2.5	2.5	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	
Lead/Lag			Lag			Lead	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode		None	None		None	None	None	C-Max		None	C-Max	
Act Effct Green (s)		42.5	59.5		42.5	62.6	10.0	63.4		13.0	66.5	
Actuated g/C Ratio		0.30	0.43		0.30	0.45	0.07	0.45		0.09	0.48	
v/c Ratio		0.90	0.32		0.72	0.42	0.77	0.86		0.80	0.69	
Control Delay (s/veh)		59.1	16.8		47.6	19.9	65.8	20.9		73.8	28.4	
Queue Delay		3.1	0.0		0.8	0.5	0.0	0.1		0.0	0.2	
Total Delay (s/veh)		62.2	16.8		48.5	20.5	65.8	21.0		73.8	28.6	
LOS		E	B		D	C	E	C		E	C	
Approach Delay (s/veh)		53.6			40.4			24.9			34.7	
Approach LOS		D			D			C			C	
90th %ile Green (s)		44.0	10.0		44.0	13.0	10.0	62.0		13.0	65.0	
90th %ile Term Code		Max	Max		Max	Max	Max	Coord		Max	Coord	
70th %ile Green (s)		44.0	10.0		44.0	13.0	10.0	62.0		13.0	65.0	
70th %ile Term Code		Max	Max		Hold	Max	Max	Coord		Max	Coord	
50th %ile Green (s)		44.0	10.0		44.0	13.0	10.0	62.0		13.0	65.0	
50th %ile Term Code		Max	Max		Hold	Max	Max	Coord		Max	Coord	

Lanes, Volumes, Timings
 11: Veterans Pkwy & E Empire St

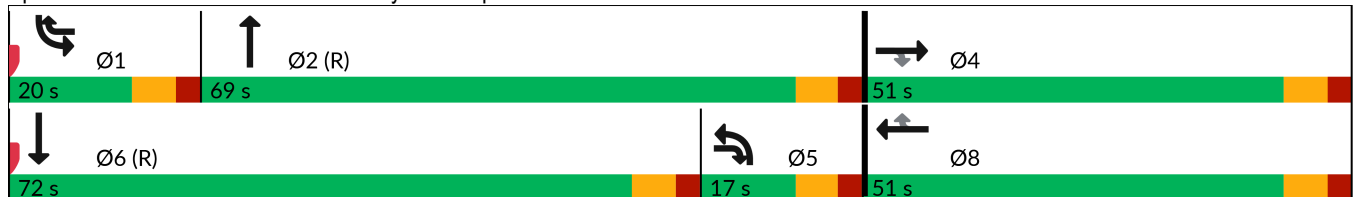


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
30th %ile Green (s)		42.8	10.0		42.8	14.2	10.0	62.0		14.2	66.2	
30th %ile Term Code		Gap	Max		Hold	Max	Max	Coord		Max	Coord	
10th %ile Green (s)		37.8	10.0		37.8	12.0	10.0	69.2		12.0	71.2	
10th %ile Term Code		Gap	Hold		Hold	Gap	Hold	Coord		Gap	Coord	
Queue Length 50th (ft)		428	76		316	128	82	409		113	410	
Queue Length 95th (ft)		519	139		391	207	#141	404		#184	458	
Internal Link Dist (ft)		450			429			395			450	
Turn Bay Length (ft)												
Base Capacity (vph)		1085	700		1085	733	239	2249		320	2357	
Starvation Cap Reductn		73	0		120	154	0	25		0	150	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.94	0.32		0.78	0.53	0.77	0.87		0.79	0.73	

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 62 (44%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay (s/veh): 35.9
 Intersection LOS: D
 Intersection Capacity Utilization 84.6%
 ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 11: Veterans Pkwy & E Empire St



















Lanes, Volumes, Timings

12: Veterans Parkway East Junction & E Empire St

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘↙	↑↑↑		↘↙
Traffic Volume (vph)	1140	0	215	1005	0	280
Future Volume (vph)	1140	0	215	1005	0	280
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	245		0	0
Storage Lanes		0	2		0	2
Taper Length (ft)			125		25	
Satd. Flow (prot)	3455	0	3351	4964	0	2720
Flt Permitted			0.950			
Satd. Flow (perm)	3455	0	3351	4964	0	2720
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						94
Link Speed (mph)	35			35	35	
Link Distance (ft)	509			2577	334	
Travel Time (s)	9.9			50.2	6.5	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	0%	1%	1%	0%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1175	0	222	1036	0	289
Turn Type	NA		Prot	NA		Over
Protected Phases	2		4	2 4		4
Permitted Phases						
Detector Phase	2		4	2 4		4
Switch Phase						
Minimum Initial (s)	8.0		4.0			4.0
Minimum Split (s)	21.0		25.0			25.0
Total Split (s)	80.0		60.0			60.0
Total Split (%)	57.1%		42.9%			42.9%
Maximum Green (s)	73.0		53.0			53.0
Yellow Time (s)	4.5		4.5			4.5
All-Red Time (s)	2.5		2.5			2.5
Lost Time Adjust (s)	0.0		0.0			0.0
Total Lost Time (s)	7.0		7.0			7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0			3.0
Recall Mode	C-Max		None			None
Walk Time (s)			7.0			7.0
Flash Don't Walk (s)			11.0			11.0
Pedestrian Calls (#/hr)			0			0
Act Effct Green (s)	99.7		26.3	140.0		26.3
Actuated g/C Ratio	0.71		0.19	1.00		0.19
v/c Ratio	0.48		0.35	0.21		0.49
Control Delay (s/veh)	2.5		49.3	0.1		41.5
Queue Delay	0.1		0.0	0.0		0.0
Total Delay (s/veh)	2.6		49.3	0.1		41.5
LOS	A		D	A		D
Approach Delay (s/veh)	2.6			8.8	41.5	
Approach LOS	A			A	D	

Lanes, Volumes, Timings
 13: Veterans Pkwy & Empire Street South Junction

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	 		   			  
Traffic Volume (vph)	215	0	2005	280	0	1745
Future Volume (vph)	215	0	2005	280	0	1745
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		410	0	
Storage Lanes	2	0		1	0	
Taper Length (ft)	25				25	
Satd. Flow (prot)	3351	0	7365	1546	0	4964
Flt Permitted	0.950					
Satd. Flow (perm)	3351	0	7365	1546	0	4964
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)						
Link Speed (mph)	35		45			45
Link Distance (ft)	378		1025			475
Travel Time (s)	7.4		15.5			7.2
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	1%	0%	1%	1%	0%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	224	0	2089	292	0	1818
Turn Type	Prot		NA	pm+ov		NA
Protected Phases	3		2	3		6
Permitted Phases				2		
Detector Phase	3		2	3		6
Switch Phase						
Minimum Initial (s)	6.0		15.0	6.0		15.0
Minimum Split (s)	15.0		23.5	15.0		22.0
Total Split (s)	55.0		85.0	55.0		85.0
Total Split (%)	39.3%		60.7%	39.3%		60.7%
Maximum Green (s)	48.0		78.0	48.0		78.0
Yellow Time (s)	4.5		4.5	4.5		4.5
All-Red Time (s)	2.5		2.5	2.5		2.5
Lost Time Adjust (s)	0.0		0.0	0.0		0.0
Total Lost Time (s)	7.0		7.0	7.0		7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0		2.0	2.0		2.0
Recall Mode	None		C-Max	None		C-Max
Act Effct Green (s)	13.9		112.1	140.0		112.1
Actuated g/C Ratio	0.10		0.80	1.00		0.80
v/c Ratio	0.67		0.35	0.19		0.46
Control Delay (s/veh)	54.3		2.9	0.1		1.7
Queue Delay	0.0		0.0	0.0		0.0
Total Delay (s/veh)	54.3		2.9	0.1		1.7
LOS	D		A	A		A
Approach Delay (s/veh)	54.3		2.6			1.7
Approach LOS	D		A			A
90th %ile Green (s)	18.0		108.0	18.0		108.0
90th %ile Term Code	Gap		Coord	Gap		Coord
70th %ile Green (s)	15.6		110.4	15.6		110.4

Lanes, Volumes, Timings
 13: Veterans Pkwy & Empire Street South Junction

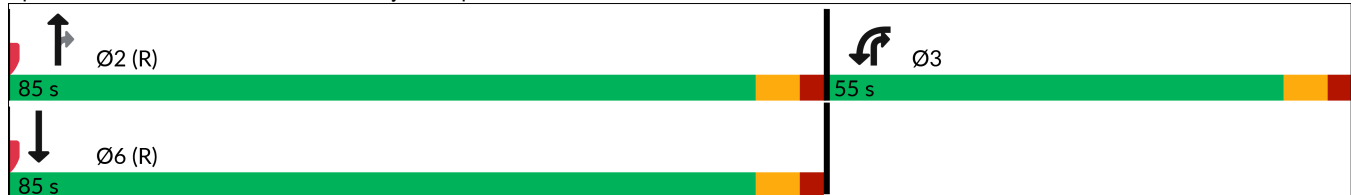


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
70th %ile Term Code	Gap		Coord	Gap		Coord
50th %ile Green (s)	13.9		112.1	13.9		112.1
50th %ile Term Code	Gap		Coord	Gap		Coord
30th %ile Green (s)	12.2		113.8	12.2		113.8
30th %ile Term Code	Gap		Coord	Gap		Coord
10th %ile Green (s)	9.7		116.3	9.7		116.3
10th %ile Term Code	Gap		Coord	Gap		Coord
Queue Length 50th (ft)	112		71	0		39
Queue Length 95th (ft)	157		m74	m0		51
Internal Link Dist (ft)	298		945			395
Turn Bay Length (ft)				410		
Base Capacity (vph)	1148		5898	1546		3975
Starvation Cap Reductn	0		0	0		456
Spillback Cap Reductn	0		210	0		0
Storage Cap Reductn	0		0	0		0
Reduced v/c Ratio	0.20		0.37	0.19		0.52
























Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 61 (44%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 40
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.67
 Intersection Signal Delay (s/veh): 4.8 Intersection LOS: A
 Intersection Capacity Utilization 51.5% ICU Level of Service A
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 13: Veterans Pkwy & Empire Street South Junction



Lanes, Volumes, Timings
 14: Veterans Pkwy & Eastland Dr

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	175	125	90	140	85	260	65	1850	165	225	1660	75
Future Volume (vph)	175	125	90	140	85	260	65	1850	165	225	1660	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		105	145		305	535		535	365		555
Storage Lanes	1		0	1		1	1		1	2		1
Taper Length (ft)	215			125			225			230		
Satd. Flow (prot)	1711	3220	0	1728	3490	1546	1745	3455	1546	3351	3455	1487
Flt Permitted	0.471			0.612			0.950			0.950		
Satd. Flow (perm)	848	3220	0	1112	3490	1546	1745	3455	1546	3351	3455	1467
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		94				140			172			86
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		2650			3241			1478			1025	
Travel Time (s)		60.2			73.7			22.4			15.5	
Confl. Peds. (#/hr)			1	1			1					1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	1%	1%	1%	0%	1%	0%	1%	1%	1%	1%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	182	224	0	146	89	271	68	1927	172	234	1729	78
Turn Type	pm+pt	NA		pm+pt	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases	4			8		8			2			6
Detector Phase	7	4		3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0	5.0	5.0	15.0	5.0	5.0	15.0	5.0
Minimum Split (s)	12.0	43.0		12.0	43.0	12.0	12.0	39.0	12.0	12.0	39.0	12.0
Total Split (s)	25.0	28.0		19.0	22.0	20.0	31.0	73.0	19.0	20.0	62.0	25.0
Total Split (%)	17.9%	20.0%		13.6%	15.7%	14.3%	22.1%	52.1%	13.6%	14.3%	44.3%	17.9%
Maximum Green (s)	18.0	21.0		12.0	15.0	13.0	24.0	66.0	12.0	13.0	55.0	18.0
Yellow Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	1.5	2.0		1.5	2.0	3.0	3.0	3.0	1.5	3.0	3.0	1.5
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		29.0			29.0			25.0			25.0	
Pedestrian Calls (#/hr)		5			5			5			5	
Act Effct Green (s)	29.3	13.6		20.5	9.2	22.2	10.8	74.1	85.4	13.0	79.0	94.7
Actuated g/C Ratio	0.21	0.10		0.15	0.07	0.16	0.08	0.53	0.61	0.09	0.56	0.68
v/c Ratio	0.66	0.56		0.69	0.39	0.75	0.50	1.05	0.17	0.75	0.89	0.08
Control Delay (s/veh)	58.0	39.5		62.8	66.8	30.2	73.3	47.8	0.8	63.6	23.8	0.4
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	58.0	39.5		62.8	66.8	30.2	73.3	47.8	0.8	63.6	23.8	0.4
LOS	E	D		E	E	C	E	D	A	E	C	A
Approach Delay (s/veh)		47.8			46.0			44.9			27.4	

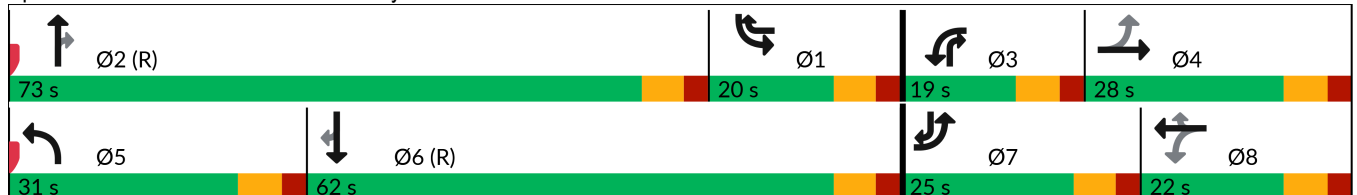
Lanes, Volumes, Timings
 14: Veterans Pkwy & Eastland Dr

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			D			D			C		
90th %ile Green (s)	18.0	21.0		12.0	15.0	13.0	15.1	66.0	12.0	13.0	63.9	18.0
90th %ile Term Code	Max	Ped		Max	Ped	Max	Gap	Coord	Max	Max	Coord	Max
70th %ile Green (s)	18.0	15.0		12.0	9.0	13.0	12.6	72.0	12.0	13.0	72.4	18.0
70th %ile Term Code	Max	Hold		Max	Gap	Max	Gap	Coord	Max	Max	Coord	Max
50th %ile Green (s)	17.2	13.2		12.0	8.0	13.0	10.8	73.8	12.0	13.0	76.0	17.2
50th %ile Term Code	Gap	Hold		Max	Gap	Max	Gap	Coord	Max	Max	Coord	Gap
30th %ile Green (s)	14.5	9.6		11.9	7.0	13.0	9.1	77.5	11.9	13.0	81.4	14.5
30th %ile Term Code	Gap	Hold		Gap	Min	Max	Gap	Coord	Gap	Max	Coord	Gap
10th %ile Green (s)	10.8	9.2		8.6	7.0	13.0	0.0	81.2	8.6	13.0	101.2	10.8
10th %ile Term Code	Gap	Hold		Gap	Min	Hold	Skip	Coord	Gap	Hold	Coord	Gap
Queue Length 50th (ft)	144	60		113	42	83	56	~1016	5	112	812	0
Queue Length 95th (ft)	206	98		166	68	146	m59	m#1091	m14	#169	#1097	0
Internal Link Dist (ft)	2570			3161			1398			945		
Turn Bay Length (ft)	350			145			305			535		
Base Capacity (vph)	299			562			221			373		
Starvation Cap Reductn	0			0			0			0		
Spillback Cap Reductn	0			0			0			0		
Storage Cap Reductn	0			0			0			0		
Reduced v/c Ratio	0.61			0.40			0.66			0.24		
	0.75			0.23			1.05			0.17		
	0.75			0.89			0.07					

























Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 66 (47%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.05
 Intersection Signal Delay (s/veh): 38.3 Intersection LOS: D
 Intersection Capacity Utilization 96.4% ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 14: Veterans Pkwy & Eastland Dr



Lanes, Volumes, Timings
 15: Veterans Pkwy & E Washington St

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	295	350	155	185	230	240	70	1545	175	190	1545	155
Future Volume (vph)	295	350	155	185	230	240	70	1545	175	190	1545	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	245		310	160		315	495		490	435		615
Storage Lanes	2		1	2		1	1		1	1		1
Taper Length (ft)	85			155			225			235		
Satd. Flow (prot)	3351	3455	1546	3385	3490	1546	1728	3455	1561	1728	3455	1561
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3351	3455	1525	3385	3490	1521	1727	3455	1561	1728	3455	1540
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			140			140			86			120
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		494			3256			1707			1478	
Travel Time (s)		11.2			74.0			25.9			22.4	
Confl. Peds. (#/hr)							1					1
Confl. Bikes (#/hr)			1			4						1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	1%	1%	0%	0%	1%	1%	1%	0%	1%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	314	372	165	197	245	255	74	1644	186	202	1644	165
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	8.0	5.0	5.0	8.0	5.0	5.0	10.0	5.0	5.0	10.0	5.0
Minimum Split (s)	12.0	43.0	12.0	12.0	43.0	12.0	12.0	42.0	12.0	12.0	42.0	12.0
Total Split (s)	25.0	26.0	16.0	20.0	21.0	24.0	16.0	70.0	20.0	24.0	78.0	25.0
Total Split (%)	17.9%	18.6%	11.4%	14.3%	15.0%	17.1%	11.4%	50.0%	14.3%	17.1%	55.7%	17.9%
Maximum Green (s)	18.0	19.0	9.0	13.0	14.0	17.0	9.0	63.0	13.0	17.0	71.0	18.0
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		29.0			29.0			28.0			28.0	
Pedestrian Calls (#/hr)		5			5			5			5	
Act Effct Green (s)	16.3	18.3	27.3	11.7	13.7	31.4	9.0	64.2	82.9	17.8	73.0	89.3
Actuated g/C Ratio	0.12	0.13	0.20	0.08	0.10	0.22	0.06	0.46	0.59	0.13	0.52	0.64
v/c Ratio	0.81	0.82	0.40	0.70	0.72	0.56	0.67	1.04	0.19	0.92	0.91	0.16
Control Delay (s/veh)	76.3	74.8	10.0	76.0	73.9	24.2	70.6	51.6	1.6	75.2	39.0	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	76.3	74.8	10.0	76.0	73.9	24.2	70.6	51.6	1.6	75.2	39.0	4.0
LOS	E	E	A	E	E	C	E	D	A	E	D	A

Lanes, Volumes, Timings
 15: Veterans Pkwy & E Washington St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay (s/veh)	62.8			56.3			47.5			39.7		
Approach LOS	E			E			D			D		
90th %ile Green (s)	18.0	19.0	9.0	13.0	14.0	17.0	9.0	63.0	13.0	17.0	71.0	18.0
90th %ile Term Code	Max	Ped	Max	Max	Ped	Max	Max	Coord	Max	Max	Coord	Max
70th %ile Green (s)	18.0	19.0	9.0	13.0	14.0	17.0	9.0	63.0	13.0	17.0	71.0	18.0
70th %ile Term Code	Max	Max	Max	Max	Max	Max	Max	Coord	Max	Max	Coord	Max
50th %ile Green (s)	17.4	19.5	9.0	12.5	14.6	17.0	9.0	63.0	12.5	17.0	71.0	17.4
50th %ile Term Code	Gap	Max	Max	Gap	Max	Max	Max	Coord	Gap	Max	Coord	Gap
30th %ile Green (s)	15.5	18.5	9.0	11.0	14.0	19.5	9.0	63.0	11.0	19.5	73.5	15.5
30th %ile Term Code	Gap	Gap	Hold	Gap	Hold	Max	Hold	Coord	Gap	Max	Coord	Gap
10th %ile Green (s)	12.7	15.6	9.0	8.8	11.7	18.4	9.0	69.2	8.8	18.4	78.6	12.7
10th %ile Term Code	Gap	Gap	Hold	Gap	Hold	Gap	Hold	Coord	Gap	Gap	Coord	Gap
Queue Length 50th (ft)	144	174	14	90	115	84	63	~843	8	176	807	30
Queue Length 95th (ft)	197	#244	62	134	164	173	m#113	#990	0	m#243	#914	m46
Internal Link Dist (ft)	414			3176			1627			1398		
Turn Bay Length (ft)	245		310	160		315	495		490	435		615
Base Capacity (vph)	430	471	411	314	352	453	111	1585	973	219	1802	1045
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.79	0.40	0.63	0.70	0.56	0.67	1.04	0.19	0.92	0.91	0.16

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 1 (1%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.04

Intersection Signal Delay (s/veh): 48.1 Intersection LOS: D

Intersection Capacity Utilization 91.6% ICU Level of Service F

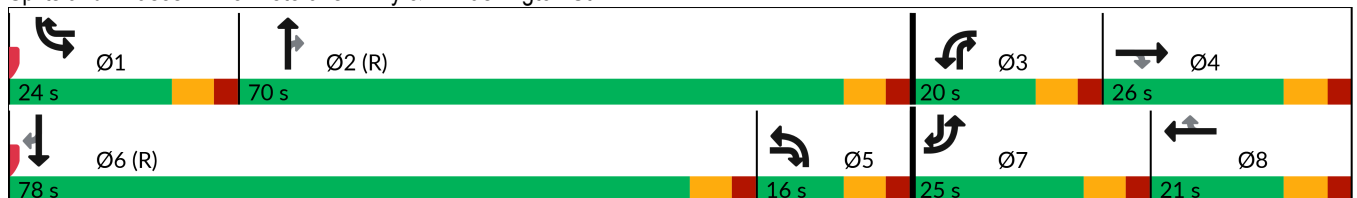
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: Veterans Pkwy & E Washington St



Lanes, Volumes, Timings
 16: Veterans Pkwy & E Jackson St



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	55	40	2	1735	1860	25
Future Volume (vph)	55	40	2	1735	1860	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	130			570
Storage Lanes	1	1	1			0
Taper Length (ft)	25		185			
Satd. Flow (prot)	1745	1561	1745	3455	3449	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1743	1561	1745	3455	3449	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		10			2	
Link Speed (mph)	25			45	45	
Link Distance (ft)	493			666	1707	
Travel Time (s)	13.4			10.1	25.9	
Confl. Peds. (#/hr)	1					
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	1%	1%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	58	42	2	1826	1984	0
Turn Type	Prot	pt+ov	Prot	NA	NA	
Protected Phases	3	3 5	5	2	6	
Permitted Phases						
Detector Phase	3	3 5	5	2	6	
Switch Phase						
Minimum Initial (s)	5.0		5.0	10.0	10.0	
Minimum Split (s)	40.0		12.0	17.0	39.0	
Total Split (s)	40.0		12.0	100.0	88.0	
Total Split (%)	28.6%		8.6%	71.4%	62.9%	
Maximum Green (s)	33.0		5.0	93.0	81.0	
Yellow Time (s)	4.5		4.5	4.5	4.5	
All-Red Time (s)	2.5		2.5	2.5	2.5	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	7.0		7.0	7.0	7.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	None		None	C-Max	C-Max	
Walk Time (s)	7.0				7.0	
Flash Don't Walk (s)	26.0				25.0	
Pedestrian Calls (#/hr)	5				5	
Act Effct Green (s)	13.8	23.8	5.5	116.2	106.2	
Actuated g/C Ratio	0.10	0.17	0.04	0.83	0.76	
v/c Ratio	0.34	0.15	0.03	0.64	0.76	
Control Delay (s/veh)	60.6	35.9	83.5	4.8	8.9	
Queue Delay	0.0	0.0	0.0	0.3	0.0	
Total Delay (s/veh)	60.6	35.9	83.5	5.2	9.0	
LOS	E	D	F	A	A	
Approach Delay (s/veh)	50.2			5.2	9.0	

Lanes, Volumes, Timings
 16: Veterans Pkwy & E Jackson St



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach LOS	D		A		A	
90th %ile Green (s)	33.0		5.0	93.0	81.0	
90th %ile Term Code	Ped		Max	Coord	Coord	
70th %ile Green (s)	11.6		5.9	114.4	101.5	
70th %ile Term Code	Gap		Gap	Coord	Coord	
50th %ile Green (s)	10.0		5.6	116.0	103.4	
50th %ile Term Code	Gap		Gap	Coord	Coord	
30th %ile Green (s)	8.4		5.5	117.6	105.1	
30th %ile Term Code	Gap		Gap	Coord	Coord	
10th %ile Green (s)	0.0		0.0	133.0	133.0	
10th %ile Term Code	Skip		Skip	Coord	Coord	
Queue Length 50th (ft)	52	25	2	115	213	
Queue Length 95th (ft)	82	49	m3	m161	#1096	
Internal Link Dist (ft)	413		586		1627	
Turn Bay Length (ft)			130			
Base Capacity (vph)	411	402	68	2867	2616	
Starvation Cap Reductn	0	0	0	433	0	
Spillback Cap Reductn	0	0	0	0	32	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.14	0.10	0.03	0.75	0.77	
























Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 136 (97%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 135
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.76
 Intersection Signal Delay (s/veh): 8.3 Intersection LOS: A
 Intersection Capacity Utilization 68.0% ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: Veterans Pkwy & E Jackson St



Lanes, Volumes, Timings
17: Veterans Pkwy & Oakland Ave

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	225	495	115	115	315	170	85	1340	155	250	1375	275
Future Volume (vph)	225	495	115	115	315	170	85	1340	155	250	1375	275
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	410		0	280		240	400		450	175		160
Storage Lanes	1		0	1		1	2		1	2		1
Taper Length (ft)	90			115			275			190		
Satd. Flow (prot)	1745	3365	0	1728	3455	1561	3385	3455	1561	3385	3455	1546
Flt Permitted	0.270			0.215			0.950			0.950		
Satd. Flow (perm)	496	3365	0	391	3455	1561	3385	3455	1561	3385	3455	1546
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18				195			140			86
Link Speed (mph)		30			35			45				45
Link Distance (ft)		2969			3540			2739				666
Travel Time (s)		67.5			69.0			41.5				10.1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	1%	0%	1%	1%	0%	0%	1%	0%	0%	1%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	237	642	0	121	332	179	89	1411	163	263	1447	289
Turn Type	pm+pt	NA		pm+pt	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases	4			8		8			2			6
Detector Phase	7	4		3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	8.0		5.0	8.0	5.0	5.0	12.0	5.0	5.0	12.0	5.0
Minimum Split (s)	12.0	43.0		12.0	43.0	12.0	12.0	39.0	12.0	12.0	39.0	12.0
Total Split (s)	26.0	36.0		15.0	25.0	25.0	13.0	64.0	15.0	25.0	76.0	26.0
Total Split (%)	18.6%	25.7%		10.7%	17.9%	17.9%	9.3%	45.7%	10.7%	17.9%	54.3%	18.6%
Maximum Green (s)	19.0	29.0		8.0	18.0	18.0	6.0	57.0	8.0	18.0	69.0	19.0
Yellow Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	6.0	2.0	2.0	6.0	2.0
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		29.0			29.0			25.0			25.0	
Pedestrian Calls (#/hr)		5			5			5			5	
Act Effct Green (s)	42.8	28.1		26.6	18.6	36.6	6.0	57.9	65.9	18.0	69.9	94.4
Actuated g/C Ratio	0.31	0.20		0.19	0.13	0.26	0.04	0.41	0.47	0.13	0.50	0.67
v/c Ratio	0.77	0.93		0.80	0.72	0.32	0.62	0.99	0.20	0.60	0.84	0.27
Control Delay (s/veh)	56.5	74.3		75.3	68.2	3.9	81.7	47.1	2.8	47.9	22.2	1.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	9.3	0.0	0.0	1.8	0.0
Total Delay (s/veh)	56.5	74.3		75.3	68.2	3.9	81.7	56.4	2.8	47.9	24.0	1.5
LOS	E	E		E	E	A	F	E	A	D	C	A
Approach Delay (s/veh)		69.5			51.3			52.5			23.9	
Approach LOS		E			D			D			C	

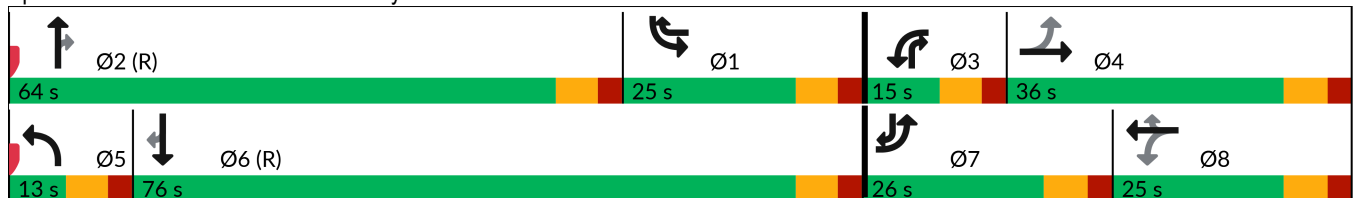
Lanes, Volumes, Timings
 17: Veterans Pkwy & Oakland Ave

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
90th %ile Green (s)	19.0	29.0		8.0	18.0	18.0	6.0	57.0	8.0	18.0	69.0	19.0
90th %ile Term Code	Max	Ped		Max	Ped	Max	Max	Coord	Max	Max	Coord	Max
70th %ile Green (s)	19.0	29.0		8.0	18.0	18.0	6.0	57.0	8.0	18.0	69.0	19.0
70th %ile Term Code	Max	Max		Max	Max	Hold	Max	Coord	Max	Hold	Coord	Max
50th %ile Green (s)	19.0	29.0		8.0	18.0	18.0	6.0	57.0	8.0	18.0	69.0	19.0
50th %ile Term Code	Max	Max		Max	Hold	Hold	Max	Coord	Max	Hold	Coord	Max
30th %ile Green (s)	17.0	28.7		8.0	19.7	18.0	6.3	57.3	8.0	18.0	69.0	17.0
30th %ile Term Code	Gap	Gap		Max	Hold	Hold	Max	Coord	Max	Hold	Coord	Gap
10th %ile Green (s)	13.3	24.8		8.0	19.5	18.0	5.6	61.2	8.0	18.0	73.6	13.3
10th %ile Term Code	Gap	Gap		Max	Hold	Hold	Gap	Coord	Max	Hold	Coord	Gap
Queue Length 50th (ft)	171	295		81	155	0	40	~705	18	107	332	43
Queue Length 95th (ft)	#258	#403		#173	211	32	m57	#856	m34	m150	343	m0
Internal Link Dist (ft)		2889			3460			2659			586	
Turn Bay Length (ft)	410			280		240	400		450	175		160
Base Capacity (vph)	322	711		151	460	552	146	1428	808	435	1725	1086
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	146	0
Spillback Cap Reductn	0	0		0	0	2	0	50	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.90		0.80	0.72	0.33	0.61	1.02	0.20	0.60	0.92	0.27





















Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
 Natural Cycle: 130
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.99
 Intersection Signal Delay (s/veh): 44.2 Intersection LOS: D
 Intersection Capacity Utilization 91.2% ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 17: Veterans Pkwy & Oakland Ave



Lanes, Volumes, Timings
18: Veterans Pkwy & E Lincoln St

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	120	40	65	120	100	35	1385	95	65	1465	75
Future Volume (vph)	95	120	40	65	120	100	35	1385	95	65	1465	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190		135	245		345	415		480	365		420
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	165			190			240			230		
Satd. Flow (prot)	1728	3357	0	1745	3215	0	1745	3423	0	1745	3433	0
Flt Permitted	0.489			0.644			0.097			0.072		
Satd. Flow (perm)	888	3357	0	1183	3215	0	178	3423	0	132	3433	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		32			106			7				5
Link Speed (mph)		30			30			45				45
Link Distance (ft)		528			572			1313				2739
Travel Time (s)		12.0			13.0			19.9				41.5
Confl. Peds. (#/hr)	1						1					
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	0%	0%	0%	1%	0%	0%	1%	0%	0%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	101	171	0	69	234	0	37	1574	0	69	1639	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	8.0		5.0	8.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	12.0	40.0		12.0	40.0		12.0	42.0		12.0	42.0	
Total Split (s)	12.0	43.0		12.0	43.0		12.0	73.0		12.0	73.0	
Total Split (%)	8.6%	30.7%		8.6%	30.7%		8.6%	52.1%		8.6%	52.1%	
Maximum Green (s)	5.0	36.0		5.0	36.0		5.0	66.0		5.0	66.0	
Yellow Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0		1.0	1.0		1.0	3.0		1.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		26.0			26.0			28.0			28.0	
Pedestrian Calls (#/hr)		5			5			5			5	
Act Effct Green (s)	20.3	16.3		18.9	13.9		89.5	89.5		90.5	90.5	
Actuated g/C Ratio	0.15	0.12		0.14	0.10		0.64	0.64		0.65	0.65	
v/c Ratio	0.64	0.41		0.39	0.57		0.22	0.72		0.45	0.74	
Control Delay (s/veh)	68.6	48.6		53.2	36.4		12.1	10.5		20.5	9.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	68.6	48.6		53.2	36.4		12.1	10.5		20.5	9.3	
LOS	E	D		D	D		B	B		C	A	
Approach Delay (s/veh)		56.0			40.2			10.5			9.7	

Lanes, Volumes, Timings
 18: Veterans Pkwy & E Lincoln St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	E			D			B			A		
90th %ile Green (s)	5.0	33.0		5.0	33.0		5.0	66.0		8.0	69.0	
90th %ile Term Code	Max	Ped		Max	Ped		Max	Coord		Max	Coord	
70th %ile Green (s)	5.0	11.1		5.0	11.1		5.0	89.6		6.3	90.9	
70th %ile Term Code	Max	Hold		Max	Gap		Max	Coord		Gap	Coord	
50th %ile Green (s)	5.0	9.3		5.0	9.3		5.0	92.1		5.6	92.7	
50th %ile Term Code	Max	Gap		Max	Hold		Max	Coord		Gap	Coord	
30th %ile Green (s)	5.0	8.0		5.0	8.0		5.0	94.0		5.0	94.0	
30th %ile Term Code	Max	Min		Max	Min		Max	Coord		Min	Coord	
10th %ile Green (s)	5.0	20.0		0.0	8.0		0.0	106.0		0.0	106.0	
10th %ile Term Code	Max	Hold		Skip	Min		Skip	Coord		Skip	Coord	
Queue Length 50th (ft)	84	66		56	61		5	114		9	105	
Queue Length 95th (ft)	114	86		83	87		m10	#880		m15	#940	
Internal Link Dist (ft)		448			492			1233			2659	
Turn Bay Length (ft)	190			245			415			365		
Base Capacity (vph)	158	887		179	905		169	2191		154	2221	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.64	0.19		0.39	0.26		0.22	0.72		0.45	0.74	

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 67 (48%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
 Natural Cycle: 130
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.74
 Intersection Signal Delay (s/veh): 15.7 Intersection LOS: B
 Intersection Capacity Utilization 83.0% ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 18: Veterans Pkwy & E Lincoln St



Lanes, Volumes, Timings
 19: Veterans Pkwy & Ireland Grove Rd



Lane Group	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (vph)	165	110	1405	160	90	1480
Future Volume (vph)	165	110	1405	160	90	1480
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		585	340	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				230	
Satd. Flow (prot)	1720	1483	3403	0	1745	3421
Flt Permitted	0.955				0.950	
Satd. Flow (perm)	1720	1483	3403	0	1745	3421
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	2	19	12			
Link Speed (mph)	35		45			45
Link Distance (ft)	485		1559			1313
Travel Time (s)	9.4		23.6			19.9
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	0%	1%	1%	0%	2%
Shared Lane Traffic (%)		10%				
Lane Group Flow (vph)	188	105	1665	0	96	1574
Turn Type	Prot	pt+ov	NA		Prot	NA
Protected Phases	4	1 4	2		1	6
Permitted Phases						
Detector Phase	4	1 4	2		1	6
Switch Phase						
Minimum Initial (s)	6.0		10.0		5.0	10.0
Minimum Split (s)	40.0		39.0		12.0	17.0
Total Split (s)	40.0		77.0		23.0	100.0
Total Split (%)	28.6%		55.0%		16.4%	71.4%
Maximum Green (s)	33.0		70.0		16.0	93.0
Yellow Time (s)	4.5		4.5		4.5	4.5
All-Red Time (s)	2.5		2.5		2.5	2.5
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	7.0		7.0		7.0	7.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Recall Mode	None		C-Max		None	C-Max
Walk Time (s)	7.0		7.0			
Flash Don't Walk (s)	26.0		25.0			
Pedestrian Calls (#/hr)	5		5			
Act Effct Green (s)	21.6	44.6	81.4		16.0	104.4
Actuated g/C Ratio	0.15	0.32	0.58		0.11	0.75
v/c Ratio	0.71	0.22	0.84		0.48	0.62
Control Delay (s/veh)	69.0	27.8	29.7		52.3	2.1
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay (s/veh)	69.0	27.8	29.7		52.3	2.1
LOS	E	C	C		D	A
Approach Delay (s/veh)	54.2		29.7			5.0
Approach LOS	D		C			A

Lanes, Volumes, Timings
 19: Veterans Pkwy & Ireland Grove Rd



Lane Group	NWL	NWR	NET	NER	SWL	SWT
90th %ile Green (s)	33.0		70.0		16.0	93.0
90th %ile Term Code	Ped		Coord		Max	Coord
70th %ile Green (s)	23.5		79.5		16.0	102.5
70th %ile Term Code	Gap		Coord		Hold	Coord
50th %ile Green (s)	20.5		82.5		16.0	105.5
50th %ile Term Code	Gap		Coord		Hold	Coord
30th %ile Green (s)	17.5		85.5		16.0	108.5
30th %ile Term Code	Gap		Coord		Hold	Coord
10th %ile Green (s)	13.3		89.7		16.0	112.7
10th %ile Term Code	Gap		Coord		Hold	Coord
Queue Length 50th (ft)	165	60	608		91	52
Queue Length 95th (ft)	225	96	#944		m121	53
Internal Link Dist (ft)	405		1479			1233
Turn Bay Length (ft)					340	
Base Capacity (vph)	406	604	1984		199	2551
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.46	0.17	0.84		0.48	0.62

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 68 (49%), Referenced to phase 2:NET and 6:SWT, Start of 1st Green
 Natural Cycle: 115
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay (s/veh): 20.3 Intersection LOS: C
 Intersection Capacity Utilization 77.8% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 19: Veterans Pkwy & Ireland Grove Rd



Arterial Level of Service
AM Peak Hour

Arterial Level of Service: NB Veterans Pkwy

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Ireland Grove Rd	19	33.6	56.5	0.3	19
E Lincoln St	18	11.7	31.5	0.2	28
Oakland Ave	17	22.3	62.6	0.5	30
E Jackson St	16	5.4	15.7	0.1	29
E Washington St	15	22.8	48.1	0.3	24
Eastland Dr	14	22.7	45.1	0.3	22
Empire Street South	13	7.5	23.3	0.2	30
E Empire St	11	14.3	21.1	0.1	15
Empire Street North	9	8.5	16.7	0.1	22
Clearwater Ave	8	22.1	60.3	0.5	29
General Electric Rd	7	15.7	48.1	0.4	31
Jumer Dr	6	23.5	44.2	0.3	21
E College Ave	5	20.6	42.2	0.3	23
Parkway Plaza	4	13.0	32.6	0.2	27
Fort Jesse Rd	3	34.6	55.0	0.3	17
Shepard Rd	2	38.6	76.1	0.5	23
Total		317.0	679.0	4.6	24

Arterial Level of Service: SB Veterans Pkwy

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Shepard Rd	2	21.7	70.9	0.6	32
Fort Jesse Rd	3	47.1	84.4	0.5	20
Parkway Plaza	4	16.8	37.8	0.3	25
E College Ave	5	31.1	50.4	0.2	18
Von Maur Dr	6	46.1	67.7	0.3	15
E Vernon Ave	7	35.1	55.2	0.3	17
Clearwater Ave	8	25.5	58.5	0.4	25
Empire Street North	9	31.1	69.3	0.5	25
E Empire St	11	45.0	52.8	0.1	7
Empire Street South	13	6.8	14.1	0.1	23
Eastland Dr	14	12.8	28.5	0.2	25
E Washington St	15	39.7	61.7	0.3	16
E Jackson St	16	19.3	45.3	0.3	26
Oakland Ave	17	21.5	31.3	0.1	14
E Lincoln St	18	13.3	54.5	0.5	34
Ireland Grove Rd	19	4.0	23.9	0.2	38
Total		416.9	805.9	4.9	22

Arterial Level of Service
PM Peak Hour

Arterial Level of Service: NB Veterans Pkwy

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Ireland Grove Rd	19	27.6	50.4	0.3	21
E Lincoln St	18	22.6	42.7	0.2	21
Oakland Ave	17	30.7	71.2	0.5	26
E Jackson St	16	8.2	18.5	0.1	25
E Washington St	15	52.3	77.6	0.3	15
Eastland Dr	14	55.7	77.9	0.3	13
Empire Street South	13	12.8	28.7	0.2	24
E Empire St	11	31.9	38.5	0.1	8
Empire Street North	9	27.5	35.5	0.1	10
Clearwater Ave	8	71.4	109.0	0.5	16
General Electric Rd	7	84.9	117.0	0.4	13
Jumer Dr	6	44.4	65.2	0.3	14
E College Ave	5	47.9	69.5	0.3	14
Parkway Plaza	4	35.1	54.7	0.2	16
Fort Jesse Rd	3	60.3	80.6	0.3	12
Shepard Rd	2	35.4	72.2	0.5	24
Total		648.7	1009.4	4.6	16

Arterial Level of Service: SB Veterans Pkwy

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Shepard Rd	2	42.6	91.5	0.6	25
Fort Jesse Rd	3	66.9	103.8	0.5	17
Parkway Plaza	4	33.7	54.2	0.3	17
E College Ave	5	56.5	75.6	0.2	12
Von Maur Dr	6	67.1	88.1	0.3	11
E Vernon Ave	7	51.1	71.3	0.3	13
Clearwater Ave	8	36.6	69.3	0.4	21
Empire Street North	9	6.4	45.0	0.5	39
E Empire St	11	22.8	30.4	0.1	12
Empire Street South	13	13.4	20.5	0.1	16
Eastland Dr	14	28.8	44.6	0.2	16
E Washington St	15	30.5	52.5	0.3	19
E Jackson St	16	20.1	46.1	0.3	25
Oakland Ave	17	29.5	39.4	0.1	12
E Lincoln St	18	22.5	63.8	0.5	29
Ireland Grove Rd	19	5.4	25.2	0.2	35
Total		534.0	921.4	4.9	19

Existing
Model 1
Model 2
Model 3

MOVES ID	Intersection:					Length ft				Volume					Period	Speed
	INT	Direction	Road	From	To	# Lanes	Feet	Meters	Miles	Autos	Bus	Med Trks	Hvy Trks	Total		
1	7	NBL	Veterans Pkwy	Clearwater Avenue	E Vernon Ave	2	2185	665.988	0.413826	310	0	0	0	310	PM	22.0
2	7	NBT	Veterans Pkwy	Clearwater Avenue	E Vernon Ave	3	2185	665.988	0.413826	1953	5	5	7	1970	PM	31.4
3	7	NBR	Veterans Pkwy	Clearwater Avenue	E Vernon Ave	1	2185	665.988	0.413826	179	0	1	0	180	PM	43.4
4	7	SBL	Veterans Pkwy	Jumer Dr	E Vernon Ave	2	1370	417.576	0.25947	154	0	1	0	155	PM	11.0
5	7	SBT	Veterans Pkwy	Jumer Dr	E Vernon Ave	3	1370	417.576	0.25947	1592	1	6	1	1600	PM	17.2
6	7	SBR	Veterans Pkwy	Jumer Dr	E Vernon Ave	1	1370	417.576	0.25947	259	0	1	0	260	PM	37.9
7	7	EBL	E Vernon Avenue	IAA Dr	Veterans Pkwy	2	379	115.5192	0.07178	295	0	0	0	295	PM	3.1
8	7	EBT	E Vernon Avenue	IAA Dr	Veterans Pkwy	2	379	115.5192	0.07178	394	1	0	0	395	PM	3.6
9	7	EBR	E Vernon Avenue	IAA Dr	Veterans Pkwy	1	379	115.5192	0.07178	417	0	2	1	420	PM	8.9
10	7	WBL	General Electric Rd	Auto Row Dr	Veterans Pkwy	2	486	148.1328	0.092045	180	0	0	0	180	PM	3.6
11	7	WBT	General Electric Rd	Auto Row Dr	Veterans Pkwy	2	486	148.1328	0.092045	319	1	0	0	320	PM	3.8
12	7	WBR	General Electric Rd	Auto Row Dr	Veterans Pkwy	1	486	148.1328	0.092045	205	2	3	0	210	PM	13.9
13	19	NET	Veterans Pkwy	S Mercer Ave	Ireland Grove Rd	3	1559	475.1832	0.295265	1296	2	3	4	1305	PM	35.4
14	19	NER	Veterans Pkwy	S Mercer Ave	Ireland Grove Rd	1	1559	475.1832	0.295265	163	0	2	0	165	PM	44.6
15	19	SWL	Veterans Pkwy	E Lincoln St	Ireland Grove Rd	2	1313	400.2024	0.248674	95	0	0	0	95	PM	13.1
16	19	SWT	Veterans Pkwy	E Lincoln St	Ireland Grove Rd	3	1313	400.2024	0.248674	1409	1	16	4	1430	PM	43.3
17	19	NWL	Ireland Grove Rd	Loop Rd	Veterans Pkwy	2	485	147.828	0.091856	168	0	2	0	170	PM	4.6
18	19	NWR	Ireland Grove Rd	Loop Rd	Veterans Pkwy	1	485	147.828	0.091856	115	0	0	0	115	PM	7.9
19	7	NBL	Veterans Pkwy	Clearwater Avenue	E Vernon Ave	2	2185	665.988	0.413826	360	0	0	0	360	PM	18.7
20	7	NBT	Veterans Pkwy	Clearwater Avenue	E Vernon Ave	3	2185	665.988	0.413826	2260	6	6	8	2272	PM	23.1
21	7	NBR	Veterans Pkwy	Clearwater Avenue	E Vernon Ave	1	2185	665.988	0.413826	199	0	1	0	200	PM	44.7
22	7	SBL	Veterans Pkwy	Jumer Dr	E Vernon Ave	2	1370	417.576	0.25947	169	0	1	0	170	PM	10.7
23	7	SBT	Veterans Pkwy	Jumer Dr	E Vernon Ave	3	1370	417.576	0.25947	1811	1	7	1	1819	PM	16.0
24	7	SBR	Veterans Pkwy	Jumer Dr	E Vernon Ave	1	1370	417.576	0.25947	304	0	1	0	305	PM	41.2
25	7	EBL	E Vernon Avenue	IAA Dr	Veterans Pkwy	2	379	115.5192	0.07178	345	0	0	0	345	PM	3.1
26	7	EBT	E Vernon Avenue	IAA Dr	Veterans Pkwy	2	379	115.5192	0.07178	459	1	0	0	460	PM	3.8
27	7	EBR	E Vernon Avenue	IAA Dr	Veterans Pkwy	1	379	115.5192	0.07178	487	0	2	1	489	PM	6.3
28	7	WBL	General Electric Rd	Auto Row Dr	Veterans Pkwy	2	486	148.1328	0.092045	200	0	0	0	200	PM	3.4
29	7	WBT	General Electric Rd	Auto Row Dr	Veterans Pkwy	2	486	148.1328	0.092045	354	1	0	0	355	PM	4.0
30	7	WBR	General Electric Rd	Auto Row Dr	Veterans Pkwy	1	486	148.1328	0.092045	225	2	3	0	230	PM	13.6
31	19	NET	Veterans Pkwy	S Mercer Ave	Ireland Grove Rd	3	1559	475.1832	0.295265	1455	2	3	4	1461	PM	28.8
32	19	NER	Veterans Pkwy	S Mercer Ave	Ireland Grove Rd	1	1559	475.1832	0.295265	198	0	2	0	200	PM	43.5
33	19	SWL	Veterans Pkwy	E Lincoln St	Ireland Grove Rd	2	1313	400.2024	0.248674	115	0	0	0	115	PM	13.1
34	19	SWT	Veterans Pkwy	E Lincoln St	Ireland Grove Rd	3	1313	400.2024	0.248674	1577	1	18	4	1596	PM	43.1
35	19	NWL	Ireland Grove Rd	Loop Rd	Veterans Pkwy	2	485	147.828	0.091856	203	0	2	0	205	PM	4.6
36	19	NWR	Ireland Grove Rd	Loop Rd	Veterans Pkwy	1	485	147.828	0.091856	140	0	0	0	140	PM	7.2
37	7	NBL	Veterans Pkwy	Clearwater Avenue	E Vernon Ave	2	2185	665.988	0.413826	360	0	0	0	360	PM	17.1
38	7	NBT	Veterans Pkwy	Clearwater Avenue	E Vernon Ave	3	2185	665.988	0.413826	2260	6	6	8	2280	PM	20.8
39	7	NBR	Veterans Pkwy	Clearwater Avenue	E Vernon Ave	1	2185	665.988	0.413826	199	0	1	0	200	PM	42.1
40	7	SBL	Veterans Pkwy	Jumer Dr	E Vernon Ave	2	1370	417.576	0.25947	169	0	1	0	170	PM	4.3
41	7	SBT	Veterans Pkwy	Jumer Dr	E Vernon Ave	3	1370	417.576	0.25947	1811	1	7	1	1820	PM	14.1
42	7	SBR	Veterans Pkwy	Jumer Dr	E Vernon Ave	1	1370	417.576	0.25947	304	0	1	0	305	PM	41.2
43	7	EBL	E Vernon Avenue	IAA Dr	Veterans Pkwy	2	379	115.5192	0.07178	345	0	0	0	345	PM	3.3
44	7	EBT	E Vernon Avenue	IAA Dr	Veterans Pkwy	2	379	115.5192	0.07178	459	1	0	0	460	PM	4.4
45	7	EBR	E Vernon Avenue	IAA Dr	Veterans Pkwy	1	379	115.5192	0.07178	487	0	2	1	490	PM	7.2
46	7	WBL	General Electric Rd	Auto Row Dr	Veterans Pkwy	2	486	148.1328	0.092045	200	0	0	0	200	PM	2.1
47	7	WBT	General Electric Rd	Auto Row Dr	Veterans Pkwy	2	486	148.1328	0.092045	354	1	0	0	355	PM	4.6
48	7	WBR	General Electric Rd	Auto Row Dr	Veterans Pkwy	1	486	148.1328	0.092045	225	2	3	0	230	PM	12.7
49	19	NET	Veterans Pkwy	S Mercer Ave	Ireland Grove Rd	3	1559	475.1832	0.295265	1652	2	6	4	1665	PM	22.0
50	19	SWL	Veterans Pkwy	E Lincoln St	Ireland Grove Rd	1	1313	400.2024	0.248674	115	0	0	0	115	PM	14.1
51	19	SWT	Veterans Pkwy	E Lincoln St	Ireland Grove Rd	3	1313	400.2024	0.248674	1577	1	18	4	1600	PM	42.4
52	19	NWL	Ireland Grove Rd	Loop Rd	Veterans Pkwy	2	485	147.828	0.091856	203	0	2	0	205	PM	5.1
53	19	NWR	Ireland Grove Rd	Loop Rd	Veterans Pkwy	1	485	147.828	0.091856	140	0	0	0	140	PM	8.9
54	7	NBL	Veterans Pkwy	Clearwater Avenue	E Vernon Ave	2	2185	665.988	0.413826	270	0	0	0	270	PM	16.2
55	7	NBT	Veterans Pkwy	Clearwater Avenue	E Vernon Ave	2	2185	665.988	0.413826	1988	5	5	7	2005	PM	16.5
56	7	NBR	Veterans Pkwy	Clearwater Avenue	E Vernon Ave	1	2185	665.988	0.413826	154	0	1	0	155	PM	45.0
57	7	SBL	Veterans Pkwy	Jumer Dr	E Vernon Ave	2	1370	417.576	0.25947	139	0	1	0	140	PM	6.7
58	7	SBT	Veterans Pkwy	Jumer Dr	E Vernon Ave	2	1370	417.576	0.25947	1612	1	6	1	1620	PM	13.0
59	7	SBR	Veterans Pkwy	Jumer Dr	E Vernon Ave	1	1370	417.576	0.25947	229	0	1	0	230	PM	29.0
60	7	EBL	E Vernon Avenue	IAA Dr	Veterans Pkwy	2	379	115.5192	0.07178	260	0	0	0	260	PM	2.2
61	7	EBT	E Vernon Avenue	IAA Dr	Veterans Pkwy	2	379	115.5192	0.07178	454	1	0	0	455	PM	3.0
62	7	EBR	E Vernon Avenue	IAA Dr	Veterans Pkwy	1	379	115.5192	0.07178	362	0	2	1	365	PM	5.7
63	7	WBL	General Electric Rd	Auto Row Dr	Veterans Pkwy	2	486	148.1328	0.092045	155	0	0	0	155	PM	2.5
64	7	WBT	General Electric Rd	Auto Row Dr	Veterans Pkwy	2	486	148.1328	0.092045	339	1	0	0	340	PM	3.7
65	7	WBR	General Electric Rd	Auto Row Dr	Veterans Pkwy	1	486	148.1328	0.092045	181	2	3	0	185	PM	13.9
66	19	NET	Veterans Pkwy	S Mercer Ave	Ireland Grove Rd	2	1559	475.1832	0.295265	1553	2	5	4	1565	PM	19.9
67	19	SWL	Veterans Pkwy	E Lincoln St	Ireland Grove Rd	1	1313	400.2024	0.248674	90	0	0	0	90	PM	12.4
68	19	SWT	Veterans Pkwy	E Lincoln St	Ireland Grove Rd	2	1313	400.2024	0.248674	1458	1	17	4	1480	PM	40.7
69	19	NWL	Ireland Grove Rd	Loop Rd	Veterans Pkwy	1	485	147.828	0.091856	163	0	2	0	165	PM	4.3
70	19	NWR	Ireland Grove Rd	Loop Rd	Veterans Pkwy	1	485	147.828	0.091856	110	0	0	0	110	PM	9.4

