



100 NORTH MAIN STREET
O'FALLON, MISSOURI 63366
636.240.2000
FACSIMILE 636.978-4144
www.ofallon.mo.us

1/18/23

RE: Request for Qualifications: **RFQ 23-005 West Terra Lane Realignment**

Dear Consultant:

The **City of O'Fallon** is requesting the services of a consulting engineering firm to perform the described professional services for the project included on the attached list. If your firm would like to be considered for these consulting services, you may express your interest by responding to the appropriate office, which is indicated on the attachments. **Please limit your letter of interest to no more than 8 pages.** This letter should include any information which might help us in the selection process, such as the persons or team you would assign to the project, project approach, the backgrounds of those individuals, and other projects your company has recently completed or are now active, previous federally-funded project experience, experience with right-of-way services including displacements, and any other relevant information.

It is required that your firm be prequalified with MoDOT and listed in [MoDOT's Approved Consultant Prequalification List](#), or your firm will be considered non-responsive.

It is required that your firm's Statement of Qualification (RSMo 8.285 through 8.291) and an Affidavit of Compliance with the federal work authorization program along with a copy of your firm's E-Verify Memorandum of Understanding (15 CSR 60-15.020) be submitted with your firm's Letter of Interest. These documents are not included in the total page count limit.

We request all submittals be received by **12:00 p.m. local time on Thursday February 23, 2023**. Submittals shall be clearly labeled **RFQ 23-005 West Terra Lane Realignment**. Letter of interest should not exceed 8 pages total. A page is defined as 8-1/2 by 11 inches single sided.

The City requires one original copy of the letter of interest and all supporting documentation with a copy of all documents contained on a flash/thumb drive delivered in an envelope labeled "RFQ 23-005 West Terra Lane Realignment" to:

Christine Grabin, Purchasing Agent
100 North Main Street
O'Fallon, MO 63366
cgrabin@ofallon.mo.us
Phone 636-379-5527

Any questions regarding the project may be submitted to the project manager, Paul Talimonchuk, at Ptalimonchuk@ofallon.mo.us. We request any questions be submitted no later than **2:00 PM** local time on **February 21, 2023**.

Sincerely,

City of O'Fallon

A handwritten signature in black ink, appearing to read "Paul Talimonchuk", with a stylized, flowing script.

Paul Talimonchuk
Project Manager

Attachments:

- LPA Project information
- BROOKS ACT CONSULTANT SELECTION INFORMATION
- Example Rating Sheet
- Redacted County Road Board Application

City/County <u>St. Charles</u> Route <u>W. Terra Lane</u>	
Federal Aid No: NA	City is looking to apply for federal funds for Construction.
Location: W. Terra Ln from N. Central Dr 2,750 lf to the West.	
Proposed Improvement:	Realignment of W. Terra Lane to allow for congestion mitigation at the intersection of Bryan Road, and future connection points for Deer Creek Extension and any Future I-70 Bryan Road interchange upgrades performed by others.
Length:	1.5 mi
Approximate Construction Cost:	\$12,000,000.00
DBE Goal Determination:	0%
Professional Services OJT	Not required
Consultant Services Required:	<p>Major Project scope items include:</p> <ul style="list-style-type: none"> • Concept and traffic study to review various layouts, intersections configurations (signals, roundabouts, locations), and performance. Proof of concept. • New Roadway and intersection design. • Geotechnical investigation and reports • Hazardous Material Assessments • Environmental Clearances • Cultural Clearances • ADA Improvements • Sidewalk/Pedestrian Improvements • Signal or Roundabout Improvements • Lighting • Storm Sewer • Retaining Walls • Utility coordination and plans of adjustment • Right-of-Way Services including negotiation, displacements, relocations, and acquisitions • Appraisals & Review Appraisals for Right of Way Takings • Final design and specifications to meet MoDOT Standards • Cost Estimates at various milestones • Open House public meetings

	<ul style="list-style-type: none"> • Public outreach • Meetings with stakeholders, council, and others • Noise Study <p>The engineering responsibilities include but are not limited to the following:</p> <ul style="list-style-type: none"> • Preparation and submittal all necessary environmental and cultural clearances as necessary • Preparation of all permitting required • Review of currently available plans and studies • Preparation of a traffic study and conceptual layout options with performance and anticipated costs. Provide a comprehensive memorandum with recommendations. • Assist in preparation of Federal Grant Applications including CMAQ or STP • Provide public outreach, exhibits, and hold public meetings at project milestones. • Attend City Stakeholder Meetings with various stakeholders, council, and others • Conduct topographic and ROW surveys and prepare electronic deliverables • Perform a noise study with findings and recommendations • Prepare concept engineering plans (30%) with estimates • Prepare ROW plans (70%), estimates and associated legal documents for the City to obtain required easements and ROW needed for the project • Prepare appraisals and review appraisals associated with all takings necessary for the project
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	<ul style="list-style-type: none"> • Prepare all ROW and easement exhibits, legal descriptions, and all other work associated to acquisition. • Negotiate and acquire ROW. Including handling of displacements and/or relocations. • Prepare draft final plans (95%) and contract documents for bidding. Submit draft final plans and contract documents. • Provide final construction plans and contract documents for bidding • Prepare and submit all required documentation for Plans Specs and Estimates (PS&E) • Provide exhibits, material, and staff for open house style public meetings • Facilitate utility coordination including utility relocation designs and plans of adjustmens. Include potholing and survey of existing utilities to determine levels of conflict. • Respond to bidder questions and provide addenda as needed. • Provide shop drawing review and clarification of plans during the construction phase services • Attend construction coordination meetings as required. • Attend on-site visits during construction during critical portions of work, to ensure compliance.
Other Comments:	<p>Project includes coordination with the St. Charles County Road Board.</p> <p>It is anticipated that federal funding will be requested for portions of this project and that federal reuquirements will be followed for the design phase to allow for inclusion of federal funds if awarded.</p>
Contact:	<p><i>Paul Talimonchuk, Project Manager</i> <i>100 North Main Street</i> <i>O'Fallon, MO 63366</i></p>

	636-379-5513 <i>ptalimonchuk@ofallon.mo.us</i>
Deadline:	<i>12:00 pm February 23, 2023</i>
<p>Submittals shall be clearly labeled RFQ 23-005 West Terra Lane Realignment. Letter of interest should not exceed 8 pages total. A page is defined as 8-1/2 by 11 inches single sided.</p> <p>It is required that your firm's Statement of Qualification (RSMo 8.285 through 8.291) and an Affidavit of Compliance with the federal work authorization program along with a copy of your firm's E-Verify Memorandum of Understanding (15 CSR 60-15.020) be submitted with your firm's Letter of Interest. These documents are not included in the total page count limit.</p> <p>The City requires one original copy of the letter of interest and all supporting documentation with a copy of all documents contained on a flash/thumb drive delivered in an envelope labeled "RFQ 23-005 West Terra Lane Realignment" to:</p> <p>Christine Grabin, Purchasing Agent 100 North Main Street O'Fallon, MO 63366 cgrabin@ofallon.mo.us Phone 636-379-5527</p>	

BROOKS ACT CONSULTANT SELECTION INFORMATION

Pursuant to the Brooks Act for Consultant Selection – the following criteria will be the basis for selection. Additional criteria can be added with the approval of Central Office Design- MoDOT.

Experience and Technical Competence -	30	Max Points
Capacity and Capability -	30	Max Points
Past Record of Performance -	30	Max Points

O’Fallon Rubric for Evaluating Consultants

Point Range Legend

30 – 21 = excellent 20 – 11 = adequate 10 – 1 = fair 0 = inadequate

Experience, Technical Competence & Project Approach

Rate the qualifications of employees designated to this specific job, for example, assigning between 30 and 21 points for the most qualified personnel. Those rated between 20 and 11 points are considered good but lack extensive experience in the particular type of service desired. A value of 10 or less points is assigned to firms with well-qualified personnel who have no experience in the proposed area of work.

Capacity & Capability

Evaluate the consulting firm for experience on similar and related types of work it has performed. For example, assigning between 30 and 21 points is for many years of established practice in the proposed type of work and related studies. A value of between 20 and 11 points may be assigned for above average experience, while 10 or less points may be given for experience adequate to perform the contract. The points for a firm with little operating experience in the selected field may be reduced further. Reduce the rating for a level of personnel inadequate to handle the firm’s indicated workload. The submitted schedule will also be evaluated as part of this portion of the rankings.

Past Record of Performance

Rate the adequacy of firms that have previously performed work under contract in related fields, assigning a maximum and reducing the points for less experience.

Terra Lane Realignment

Sponsor O'Fallon

Project No. RB22-000030

Project Type Other

Project Description

The purpose of this application is for the design of the realignment of West Terra Lane to allow for congestion mitigation at the intersection of Bryan Road and West Terra Lane, while also providing for future connection points for Deer Creek Extension and any future I-70/Bryan Road Interchange upgrades to be performed by others. The limits of the proposed West Terra Lane Realignment will extend from the intersection of West Terra Lane and North Central Drive to a tie in point approximately 2,750 linear feet to the West. As part of the design of this project, additional traffic data at the intersection of W. Terra Ln. and Bryan Rd. will be gathered and studied to determine the optimal configuration.

The existing I-70 Bryan Road interchange configuration and its close proximity to West Terra Lane prevents traffic volumes from being adequately conveyed through this area. West Terra Lane is currently located within 375 feet of the traffic signal associated with the I-70 westbound on/off ramps. This close spacing impedes the current traffic flow and will only become worse as traffic volumes increase. It has been observed that vehicle queues for west bound West Terra Lane traffic extend east on West Terra Lane to North Central Drive when school dismisses from St. Dominic and at times during rush hour. Motorists must wait through numerous cycles of the light to get through the intersection. The design of the West Terra Lane Realignment will examine relocating the Bryan Road and West Terra Lane intersection approximately 325 feet to the north, thus providing a total of approximately 700 feet of separation between the westbound I-70 on/off ramp. It is expected that by year 2030, without this relocation, vehicle queuing would become excessive through the West Terra Lane intersection and onto Interstate I-70 westbound off ramp. This is based on information provided in a draft innovative finance application cost sharing program that was compiled by St. Charles County in 2009.

The design would include but not limited to Design of West Terra Lane realignment, CE and cultural clearances as future right of way will require purchasing of structures and relocations, geotechnical analysis, survey, and roadway design.

The final products associated with this application are:

Preliminary Plans

ROW Plans

Final Construction Plans (PS&E)

NEPA Documents

Utility Coordination

Open Houses

Appraisals of affected properties

This application is for design only and the City is seeking an 80/20 split. If the City is awarded this project our future plan is to pursue CMAQ funding for right of way and construction.



Road Board Application

PROJECT INFORMATION

Permit #:	RB22-000030	Project Type:	Other
Name:	Terra Lane Realignment		
Limits:	The limits of the proposed West Terra Lane Realignment will extend from the intersection of West Terra Lane and North Central Drive to a tie in point approximately 2,750 linear feet to the West.		
Lane Miles:	1.5		
Federal Functional Classification:	3 - Major Collector		
Anticipated useful life of the proposed improvements (years):	30	Estimated date of completion:	12/31/2028
Other Information			
Traffic Volume ADT:	Existing / Future	10500 /	Projected 11000
Construction Year:	2028		

PROJECT DESCRIPTION

The purpose of this application is for the design of the realignment of West Terra Lane to allow for congestion mitigation at the intersection of Bryan Road and West Terra Lane, while also providing for future connection points for Deer Creek Extension and any future I-70/Bryan Road Interchange upgrades to be performed by others. The limits of the proposed West Terra Lane Realignment will extend from the intersection of West Terra Lane and North Central Drive to a tie in point approximately 2,750 linear feet to the West. As part of the design of this project, additional traffic data at the intersection of W. Terra Ln. and Bryan Rd. will be gathered and studied to determine the optimal configuration.

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The design would include but not limited to Design of West Terra Lane realignment, CE and cultural clearances as future right of way will require purchasing of structures and relocations, geotechnical analysis, survey, and roadway design.

The final products associated with this application are:

- Preliminary Plans
- ROW Plans
- Final Construction Plans (PS&E)
- NEPA Documents
- Utility Coordination
- Open Houses
- Appraisals of affected properties

This application is for design only and the City is seeking an 80/20 split. If the City is awarded this project our future plan is to pursue CMAQ funding for right of way and construction.

CONTACT INFORMATION

Sponsoring Agency:	City of O'Fallon
Contact Person Name:	Anthony Friedman
Title:	
Telephone Number:	(636) 379-5492
E-mail Address:	tfriedman@ofallon.mo.us

SIGNATURE

signature

4/4/2022

date

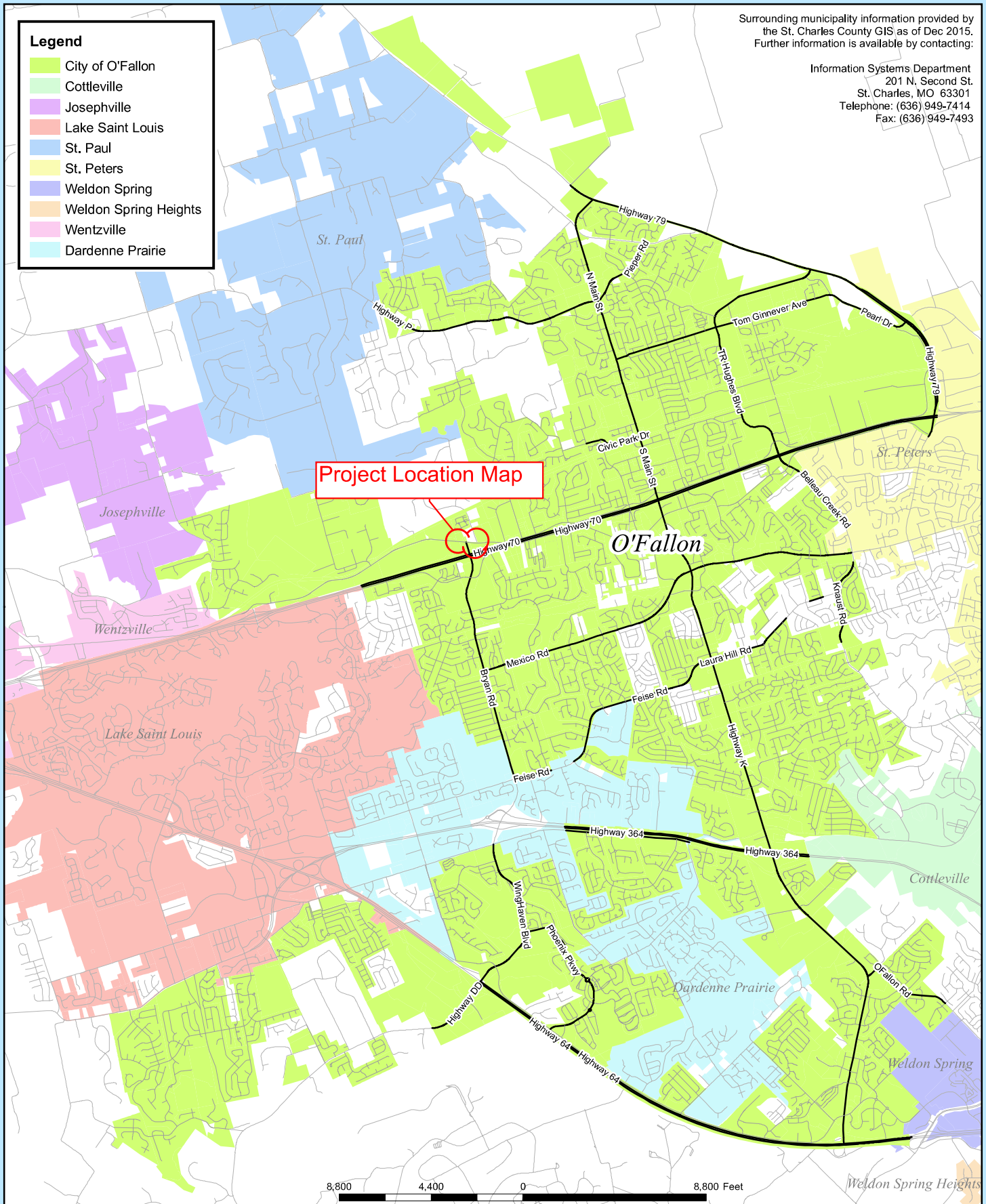
Surrounding municipality information provided by the St. Charles County GIS as of Dec 2015. Further information is available by contacting:

Information Systems Department
201 N. Second St.
St. Charles, MO 63301
Telephone: (636) 949-7414
Fax: (636) 949-7493

Legend

- City of O'Fallon
- Cottleville
- Josephville
- Lake Saint Louis
- St. Paul
- St. Peters
- Weldon Spring
- Weldon Spring Heights
- Wentzville
- Dardenne Prairie

Project Location Map



Planning & Development
Geographic Information System
O'Fallon, Missouri

O'Fallon City Limits

Information current through Ordinance 6578

Printed: 7/5/2019





NB Bryan Rd @ I-70



NB Bryan Rd @ W. Terra Ln

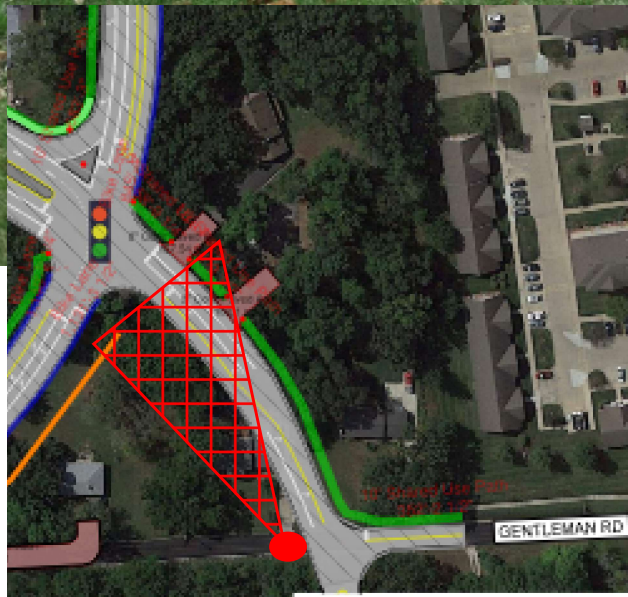


Bryan Rd @ W. Terra LN Signal

WB W. Terra Ln @ Bryan Rd.



EB W. Terra Ln looking at Bryan Rd intersection



Gentleman Rd Looking towards
Bryan Road intersection

Utilities

Overhead Electric

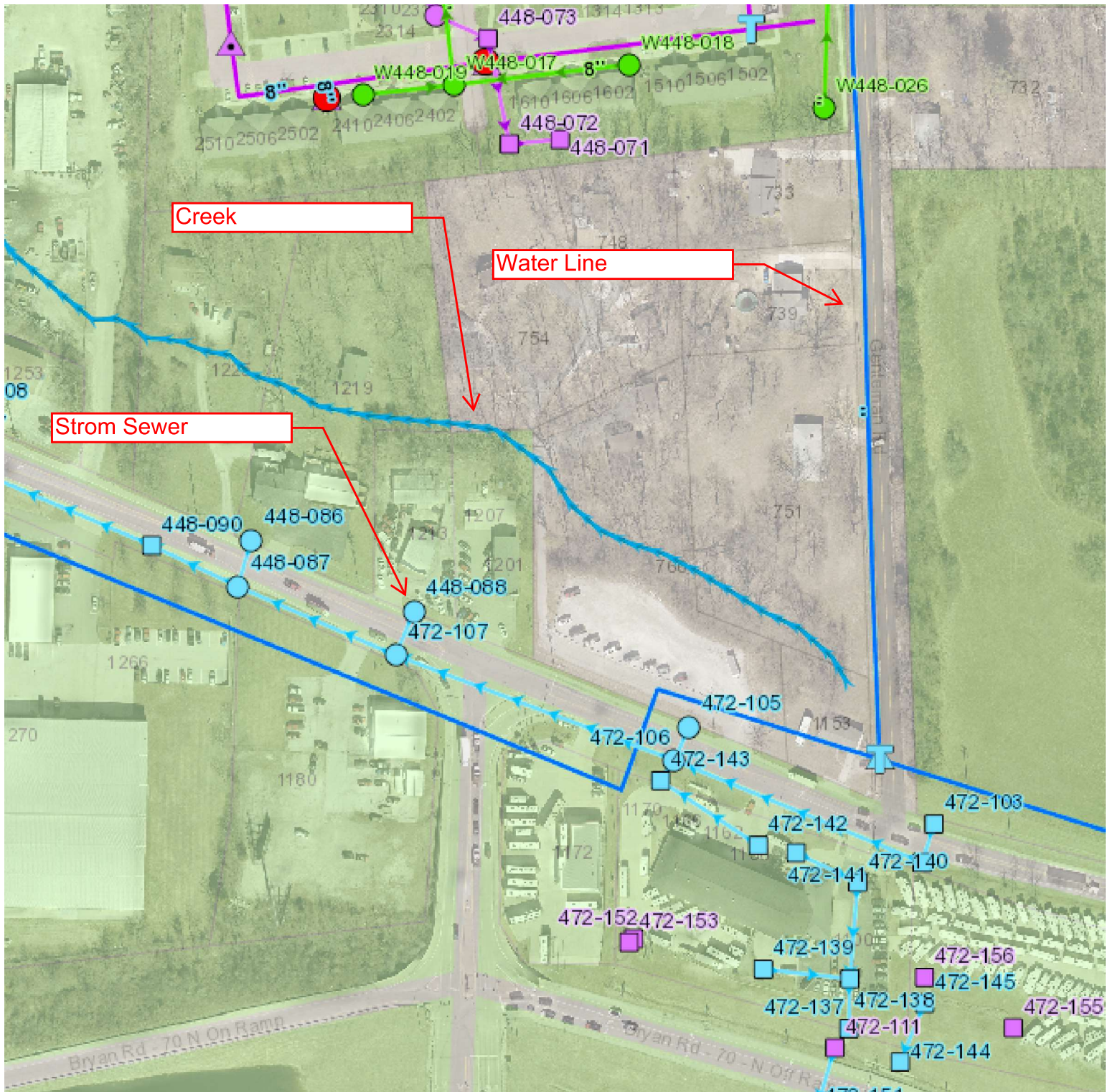
Water Line

Communication

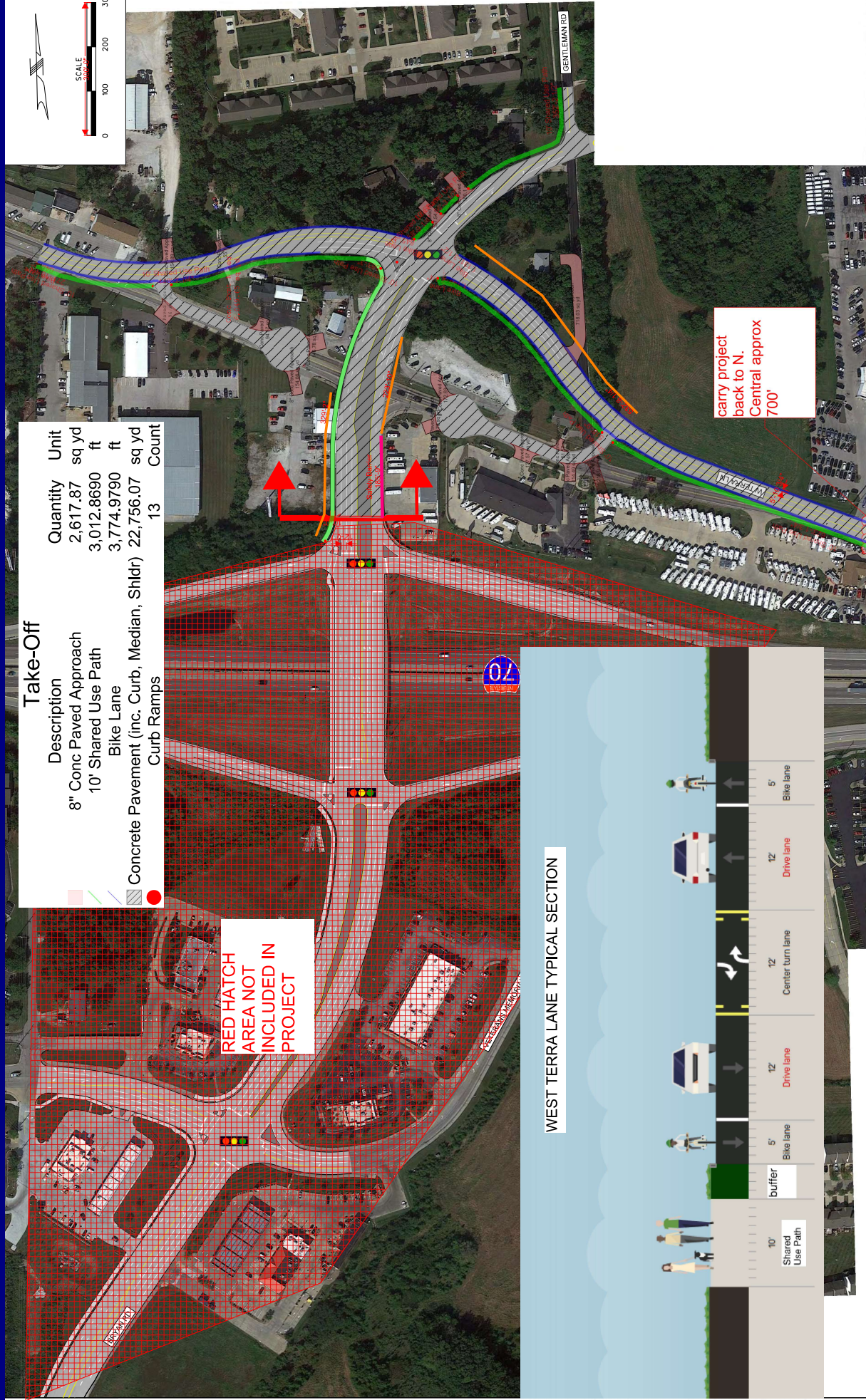
Gas Marker



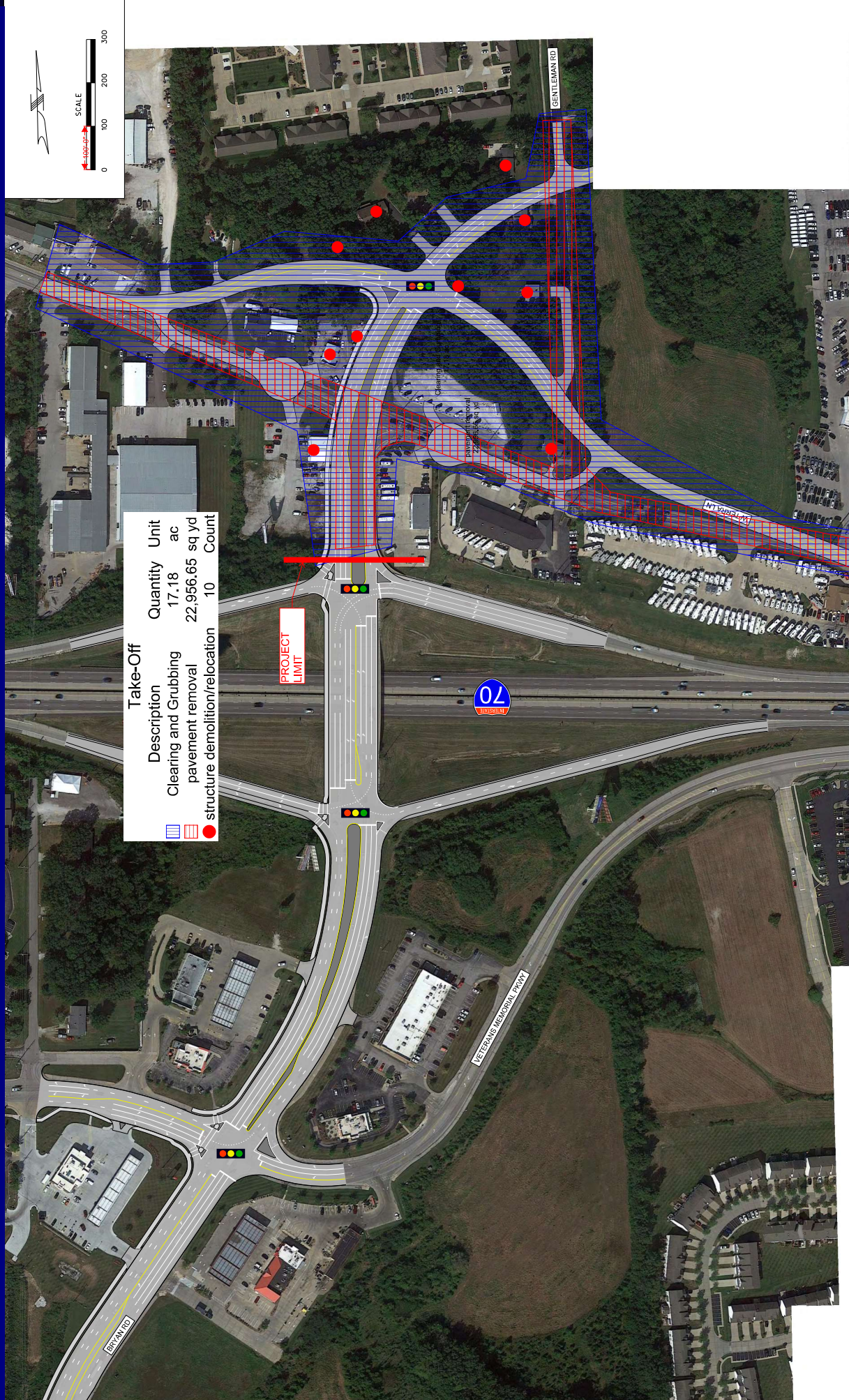
Utilities Continued



WEST TERRA LN REALIGNMENT - CONCEPTUAL PLAN



WEST TERRA LN REALIGNMENT - CONCEPTUAL REMOVALS



MEMORANDUM

To:	Mr. John Griefzu, PE Ms. Amanda Brauer, PE, PTOE
From:	Chris Beard, PE, PTOE Tyson King, PE, PTOE Lorne Jackson, PE Collin Wilcox, PE Fasil Sagir
Date:	August 31, 2020
Subject:	Interchange Study I-70 at Route 79/Salt Lick Road I-70 at Bryan Road

On behalf of St. Charles County, Lochmueller Group completed the following traffic and safety analysis and conceptual design of interchange improvements at I-70 and Route 79/Salt Lick Rd in St. Peters, Missouri and at I-70 and Bryan Rd in O'Fallon, Missouri. The purpose of this study was to develop and evaluate alternative interchange configurations for each location. The alternative configurations are intended to address congestion and safety and accommodate forecasted traffic increases in the future. This study includes traffic and safety analyses, conceptual designs of each alternative, and cost estimates for design and construction.

This study expanded upon previous analyses that evaluated a fourth through lane in each direction on I-70 between Route 79 and Bryan Rd. The previously recommended configuration with four lanes in the I-70 Lane Addition Study was incorporated into this analysis as an assumed project.

I-70 AT ROUTE 79/SALT LICK ROAD

Based on a screening of preliminary alternatives, two alternatives were developed for the I-70 interchange with Route 79/Salt Lick Rd, as follows:

- Diverging Diamond Interchange (DDI)
- Partial Cloverleaf Interchange

The existing interchange is a diamond augmented by a southbound-to-eastbound loop ramp. The diverging diamond alternative would remove the loop ramp to facilitate a four-ramp interchange typical of a diverging diamond. In addition, the ramps between southbound Route 79 and Terra Ln north of the interchange would be shifted approximately 500 feet north to increase their separation from the I-70 ramps. The relocated ramps would intersect Terra Ln opposite Commerce Dr.

The diverging diamond alternative would include dual-lane southbound left-turn and northbound right-turn movements onto eastbound I-70. These movements would feed a single two-lane eastbound on-



ramp. Therefore, this alternative would incorporate a traffic signal to assign right-of-way where these two movements merge together at the ramp.

Both alternatives would address the Salt Lick Rd intersection with Veterans Memorial Pkwy to the immediate south of the interchange. A dedicated southbound right-turn lane would be added on Salt Lick Rd, and the eastbound approach would be widened to provide two left-turn lanes, one through lane, and one right-turn lane.

The partial cloverleaf alternative would retain the existing southbound-to-eastbound loop ramp and add a complementary northbound-to-westbound loop ramp. In addition, the I-70 eastbound off-ramp would be relocated to Veterans Memorial Pkwy opposite an entrance to the 79 Crossing Shopping Center, where a roundabout would be provided. Relocating the terminus to Veterans Memorial Pkwy would eliminate the ramp's existing unsignalized intersection on Route 79/Salt Lick Rd.

On the north side of the interchange, the addition of a northbound-to-westbound loop ramp would simplify the ramp terminal intersection, as only the westbound off-ramp and north-south through traffic would be served by the traffic signal. Southbound traffic on Route 79 destined to I-70 would be barrier-separated from the through lanes, enabling those movements to by-pass the signal entirely and operate as free-flow.

To facilitate this configuration, the ramps between southbound Route 79 and Terra Ln would be modified. The on-ramp from Terra Ln to southbound Route 79 would be relocated north, and the ramp from southbound Route 79 to Terra Ln would be integrated with the on-ramp to westbound I-70, where it would branch off as a right-turn movement onto Terra Ln. A roundabout would be provided on Terra Ln to facilitate U-turn maneuvers for traffic wanting to make a left-turn onto Terra Ln from southbound Route 79.

Traffic Operations Analysis

A design year traffic operations analysis was performed to evaluate each interchange alternative. A 2040 design year was assumed for consistency with the I-70 Lane Addition Study. A No Build traffic analysis of 2040 conditions revealed failing levels of service, as the existing interchange configuration would be unable to accommodate design year traffic volumes. Since the No Build results are not a meaningful benchmark, they were omitted from this report for brevity.

Traffic forecasts from the I-70 O'Fallon Access Justification Report and outputs from the St. Charles County Regional Travel Demand Model served as the basis for the traffic forecasts developed for this study. Forecasts from both sources were generally consistent, but the forecasts from the previous study were determined to be more reasonable, particularly for lower-volume movements which are difficult for travel demand models to accurately interpret. Therefore, the previous forecasts were utilized for this analysis. The 2040 peak hour traffic volume forecasts are summarized in **Appendix A**.

The traffic analysis focused on operating conditions at the Route 79/Salt Lick Rd intersections with the I-70 ramps and Veterans Memorial Pkwy as well as any additional intersections affected by the alternatives, along with weaving along Route 79 between the interchange and ramps to/from Terra Ln.

Note that the traffic modeling included mainline I-70 and the interchange ramp merges and diverges, although the performance of those components is not reported in this summary, as it was substantially addressed by the previous I-70 Lane Addition Study.

The traffic analysis was performed in VISSIM, which is a microsimulation model that replicates individual vehicles and their interactions. Hence, it is an appropriate tool to utilize in locations with complex traffic movements, such as interchanges. In addition to VISSIM, a Synchro model was developed for signal timing development and optimization.

The traffic operational performance was graded in accordance with six levels of traffic service, as established by the Highway Capacity Manual 6th Edition (HCM), published by the Transportation Research Board. Levels of services (LOS), which range from LOS A ("free flow") to LOS F ("oversaturated"), are measures of traffic flow that consider factors such as speed, delay, interruptions, safety, and driver comfort and convenience. LOS C is commonly used for design purposes, and was therefore established as the target for this study.

For intersections, levels of service criteria are based on the delay experienced by motorists traveling through the intersection. The thresholds for signalized intersection levels of service are summarized in **Table 1**. For weaving segments, levels of service criteria are based on density or the number of vehicles occupying a given amount of space along a roadway. The thresholds for weaving along an expressway facility such as Route 79 are summarized in **Table 2**, based on the multilane highway criteria.

Table 1: Signalized Intersection Levels of Service Criteria

LEVEL OF SERVICE	CONTROL DELAY PER VEHICLE
A	< 10
B	> 10-20
C	> 20-35
D	> 35-55
E	> 55-80
F	> 80

Values reported in seconds per vehicle

Table 2: Weaving Segments Levels of Service Criteria

LEVEL OF SERVICE	CONTROL DELAY PER VEHICLE
A	< 12
B	> 12-24
C	> 24-32
D	> 32-36
E	> 36-40
F	> 40

Values reported in vehicles per mile per lane

Forecasted operating conditions with both the Diverging Diamond and Partial Cloverleaf are summarized in **Table 3** for the morning peak hour and in **Table 4** for the afternoon peak hour. More detailed summaries including operations by intersection approach and movement are summarized in **Appendix B**. During each peak hour, both alternatives would perform favorably, with each intersection operating at LOS B overall or better. The partial cloverleaf would operate with less overall delay as compared to the diverging diamond.

Specifically, the Route 79 intersection with the I-70 westbound ramps would experience 18% to 33% less delay with the partial cloverleaf alternative, due to fewer conflicting movements and signal phases. In addition, the diverging diamond includes a signalized intersection with the I-70 eastbound ramps that is omitted in the partial cloverleaf alternative. The diverging diamond also includes a signal to manage traffic turning onto the I-70 eastbound on-ramp from the north and south; it would operate efficiently at LOS A during both peak hours.

The partial cloverleaf alternative includes two roundabout intersections – one on Veterans Memorial Pkwy and one on Terra Ln. Both of these intersections would operate with minimal delay (LOS A), but neither are incorporated into the diverging diamond alternative.

Table 3: I-70 at Route 79/Salt Lick Rd Overall Intersection LOS & Delay – AM Peak Hour

INTERSECTION	DIVERGING DIAMOND	PARTIAL CLOVERLEAF
Route 79 at I-70 WB Ramps	B (18.0)	B (11.9)
Route 79 at I-70 EB Ramps	B (18.3)	N/A
I-70 EB On-Ramp Signal	A (8.1)	N/A
Salt Lick Rd at Veterans Memorial Pkwy	B (15.9)	B (17.0)
Veterans Memorial Pkwy at I-70 EB Ramp	N/A	A (3.6)
Terra Ln Roundabout	N/A	A (0.9)

Delay reported in seconds per vehicle

Table 4: I-70 at Route 79/Salt Lick Rd Overall Intersection LOS & Delay – PM Peak Hour

INTERSECTION	DIVERGING DIAMOND	PARTIAL CLOVERLEAF
Route 79 at I-70 WB Ramps	B (16.5)	B (13.5)
Route 79 at I-70 EB Ramps	B (12.5)	N/A
I-70 EB On-Ramp Signal	A (8.4)	N/A
Salt Lick Rd at Veterans Memorial Pkwy	B (13.9)	B (15.4)
Veterans Memorial Pkwy at I-70 EB Ramp	N/A	A (3.2)
Terra Ln Roundabout	N/A	A (1.2)

Delay reported in seconds per vehicle

Route 79 contains weaving segments between the I-70 westbound ramps and ramps leading to/from Terra Ln. These weaving segments would be affected by ramp relocations and changes in weaving distance imposed by each alternative. Weaving operations along northbound and southbound Route 79 are summarized in **Table 5**.

As shown, the weaving segments in both alternatives would operate acceptably at LOS C or better. However, the partial cloverleaf alternative would outperform the diverging diamond relative to southbound weaving during the morning peak hour. This is attributable to the free-flow movements from southbound Route 79 onto both eastbound and westbound I-70 in the partial cloverleaf alternative, compared to the diverging diamond alternative which channels these movements through traffic signals.

Table 5: Route 79 Weaving Segments

PEAK HOUR	SEGMENT	DIVERGING DIAMOND			PARTIAL CLOVERLEAF		
		LOS	Density	Speed	LOS	Density	Speed
AM	SB Btw Terra Ln & I-70 WB Ramps	C	28.5	20.5	B	15.3	40.7
AM	NB Btw I-70 WB Ramps & Terra Ln	A	9.8	41.6	A	9.4	41.4
PM	SB Btw Terra Ln & I-70 WB Ramps	B	23.1	22.6	B	12.6	42.0
PM	NB Btw I-70 WB Ramps & Terra Ln	B	13.8	43.9	B	15.1	40.1

Density reported in vehicles per mile per lane

Speed reported in miles per hour

Safety Analysis

A safety analysis was performed in accordance on methodologies outlined in the Highway Safety Manual (HSM). The HSM provides quantitative analysis to support decision making for improving transportation safety. Its methodology relies upon safety performance functions to correlate crash expectancy with location-specific roadway characteristics, such as the number of lanes, presence of shoulders, speeds, and traffic volumes.

Given the various types of roadway facilities comprising each interchange, multiple HSM tools were utilized. Specifically, the HSM spreadsheet was utilized for urban and suburban arterial intersections and segments, while iSATe was used to analyze ramps, and IHSDM was used to analyze roundabouts and arterials segments beyond the scope of the HSM spreadsheet. Diagrams indicating the geographic scope of each HSM tool are provided in **Appendix C**.

The HSM predictive methodology forecasts relative changes in crashes between the No Build and Alternative scenarios. Historical crash data (2014-2018) from MoDOT was utilized to weight predicted crashes based on actual crash data for the study area. As summarized in **Table 6**, the diverging diamond alternative would yield the larger reduction in crashes by eliminating nearly 15 crashes annually. The partial cloverleaf option would only reduce crashes by 5 annually.

Table 6: Highway Safety Manual Analysis Results I-70 at Route 79/Salt Lick Rd

ALTERNATIVE	EXPECTED AVERAGE CRASH FREQUENCY (CRASHES/YEAR)		
	Fatal & Injury	Property Damage Only	Total
No Build	27.1	80.8	107.9
Diverging Diamond	24.1	69.2	93.3
Partial Cloverleaf	26.5	76.5	103.1

Conceptual Design & Cost Estimate

A conceptual design and cost estimate was prepared for both alternatives. The design schematics are attached as **Appendix D**. The conceptual cost estimate is provided in **Appendix E**. The preliminary estimate for design and construction of the diverging diamond alternative is \$29 million. The preliminary estimate for design and construction of the partial cloverleaf alternative is \$41 million. These amounts include conservative estimates for utility relocations, right-of-way acquisitions, and annual cost escalations. In addition, a 20% contingency was applied.

I-70 AT BRYAN ROAD

Based on a screening of preliminary alternatives, two alternatives were developed for the I-70 interchange with Bryan Rd, as follows:

- Diverging Diamond Interchange (DDI)
- Expanded Diamond Interchange

The existing interchange is a diamond, so the expanded diamond alternative would simply add turning lanes at both the north and south ramp terminal intersections and widen the Bryan Rd overpass at I-70.

Both alternatives would address adjacent intersections along Bryan Rd to the immediate north and south of the interchange. Terra Ln would be realigned to run behind existing businesses along the north side of the road. A new intersection with Bryan Rd would be provided with increased separation from the interchange.

The intersection of Bryan Rd with Veterans Memorial Pkwy would be upgraded for additional traffic capacity. Specifically, the eastbound approach would be widened to provide two left-turn lanes, one through lane, and one right-turn lane. Additionally, Bryan Rd itself would be expanded to provide three through lanes in each direction at Veterans Memorial Pkwy. This widening would be extended south approximately 1,000 feet to the driveway of the O'Fallon Police Department and Municipal Court. This additional capacity would help disperse traffic from the interchange.

Both interchange alternatives also assume that Deer Creek Rd is extended south to Terra Ln, where it would align opposite Bryan Rd to create a continuous north-south corridor. This project is a future year project of the City of O'Fallon and is reflected in their Comprehensive Plan.

Traffic Operations Analysis

A design year traffic operations analysis was performed to evaluate each interchange alternative. A 2040 design year was assumed for consistency with the I-70 Lane Addition Study. A No Build traffic analysis revealed failing levels of service, as the existing interchange configuration is unable to accommodate design year traffic volumes. Since the No Build results are not a meaningful benchmark, they were omitted from this report for brevity.

Traffic forecasts from the I-70 O'Fallon Access Justification Report and outputs from the St. Charles County Regional Travel Demand Model served as the basis for the traffic forecasts developed for this study. Forecasts from both sources were generally consistent. Select through movements along Bryan

Rd were higher in the travel demand model due to the Deer Creek Rd extension, which may not have been considered previously. The previous forecasts were utilized except instances where the travel demand model forecasts were notably higher. The 2040 peak hour traffic volume forecasts are summarized in **Appendix A**.

The traffic analysis focused on operating conditions at the Bryan Rd intersections with Terra Ln, the I-70 ramps, and Veterans Memorial Pkwy. Note that the traffic modeling included mainline I-70 and the interchange ramp merges and diverges, although the performance of those components is not reported in this summary, as it was substantially addressed by the previous I-70 Lane Addition Study.

The traffic analysis was performed in VISSIM, which is a microsimulation model that replicates individual vehicles and their interactions. Hence, it is an appropriate tool to utilize in locations with complex traffic movements, such as interchanges. In addition to VISSIM, a Synchro model was developed for signal timing development and optimization.

The traffic operational performance of the Bryan Rd intersections was graded in accordance with six levels of traffic service, as established by the Highway Capacity Manual 6th Edition (HCM), published by the Transportation Research Board. Levels of services (LOS), which range from LOS A ("free flow") to LOS F ("oversaturated"), are measures of traffic flow that consider factors such as speed, delay, interruptions, safety, and driver comfort and convenience.

For intersections, levels of service criteria are based on the delay experienced by motorists traveling through the intersection. The thresholds for signalized intersection levels of service are summarized in **Table 6**. LOS C is commonly used for design purposes, and was therefore established as the target for this study.

Table 6: Signalized Intersection Levels of Service Criteria

LEVEL OF SERVICE	CONTROL DELAY PER VEHICLE
A	< 10
B	> 10-20
C	> 20-35
D	> 35-55
E	> 55-80
F	> 80

Values reported in seconds per vehicle

Forecasted operating conditions with both the Diverging Diamond and Expanded Diamond are summarized in **Table 7** for the morning peak hour and in **Table 8** for the afternoon peak hour. More detailed summaries including operations by intersection approach and movement are summarized in **Appendix B**.

Table 7: I-70 at Bryan Rd Overall Intersection LOS & Delay – AM Peak Hour

INTERSECTION	DIVERGING DIAMOND	EXPANDED DIAMOND
Bryan Rd/Deer Creek Rd at Terra Ln	C (21.9)	C (22.3)
Bryan Rd at I-70 WB Ramps	B (16.4)	B (18.4)
Bryan Rd at I-70 EB Ramps	B (14.7)	B (19.9)
Bryan Rd at Veterans Memorial Pkwy	C (25.4)	C (23.8)

Delay reported in seconds per vehicle

Table 8: I-70 at Bryan Rd Overall Intersection LOS & Delay – PM Peak Hour

INTERSECTION	DIVERGING DIAMOND	EXPANDED DIAMOND
Bryan Rd/Deer Creek Rd at Terra Ln	C (28.3)	C (29.4)
Bryan Rd at I-70 WB Ramps	B (17.9)	C (29.7)
Bryan Rd at I-70 EB Ramps	B (17.1)	B (19.1)
Bryan Rd at Veterans Memorial Pkwy	C (32.6)	D (41.4)

Delay reported in seconds per vehicle

During the morning peak hour, both interchange configurations would perform favorably, with each ramp terminal intersection operating at LOS B overall. While the overall levels of service would be identical, the performance of individual movements would vary, as the diverging diamond configuration inherently prioritizes left-turn movements, whereas the expanded diamond configuration naturally promotes more efficient through movements. Adjacent intersections at Terra Ln and at Veterans Memorial Pkwy would operate acceptably at LOS C overall.

During the afternoon peak hour, the diverging diamond interchange would outperform the expanded diamond, primarily due to more efficient servicing of the heavy left-turn movements onto and off of the westbound I-70 ramps. With the diverging diamond, the Bryan Rd intersection with the I-70 westbound ramps would operate at LOS B overall, with all movements operating at LOS C or better. Conversely, the same intersection with the expanded diamond would operate at LOS C overall and the northbound left-turn movement would operate at LOS F.

The adjacent intersections at Terra Ln and at Veterans Memorial Pkwy would operate acceptably at LOS C or LOS D overall during the afternoon peak hour. However, despite expanded eastbound capacity and the addition of a third through lane on Bryan Rd, the intersection with Veterans Memorial Pkwy would remain constrained for specific movements, particularly the northbound left-turn. As land to the southeast and southwest of the intersection develops in the future, care should be taken to ensure the intersection configuration accommodates the traffic generation of those developments.

Safety Analysis

A safety analysis was performed in accordance with methodologies outlined in the Highway Safety Manual (HSM). The HSM provides quantitative analysis to support decision making for improving transportation safety. Its methodology relies upon safety performance functions to correlate crash expectancy with location-specific roadway characteristics, such as the number of lanes, presence of shoulders, speeds, and traffic volumes.

Given the various types of roadway facilities comprising each interchange, multiple HSM tools were utilized. Specifically, the HSM spreadsheet was utilized for urban and suburban arterial intersections and segments, while iSATe was used to analyze ramps, and IHSDM was used to analyze roundabouts and arterials segments beyond the scope of the HSM spreadsheet. Diagrams indicating the geographic scope of each HSM tool are provided in **Appendix C**.

The HSM predictive methodology forecasts relative changes in crashes between the No Build and Alternative scenarios. Historical crash data (2014-2018) from MoDOT was utilized to weight predicted crashes based on actual crash data for the study area. As summarized in **Table 9**, the diverging diamond alternative would yield the larger reduction in crashes by eliminating 17 crashes annually. The expanded diamond option would only reduce crashes by less than 4 annually.

Table 9: Highway Safety Manual Analysis Results I-70 at Bryan Rd

ALTERNATIVE	EXPECTED AVERAGE CRASH FREQUENCY (CRASHES/YEAR)		
	Fatal & Injury	Property Damage Only	Total
No Build	34.3	79.9	114.2
Diverging Diamond	29.5	67.6	97.2
Expanded Diamond	33.1	77.4	110.6

Conceptual Design & Cost Estimate

A conceptual design and cost estimate was prepared for both alternatives. The design schematics are attached as **Appendix D**. The conceptual cost estimate is provided in **Appendix E**. The preliminary estimate for design and construction of the diverging diamond alternative is \$40 million. The preliminary estimate for design and construction of the expanded diamond alternative is \$43 million. These amounts include conservative estimates for utility relocations, right-of-way acquisitions, and annual cost escalations. In addition, a 20% contingency was applied.



Appendix

Appendix A: 2040 Forecasted Traffic Volumes

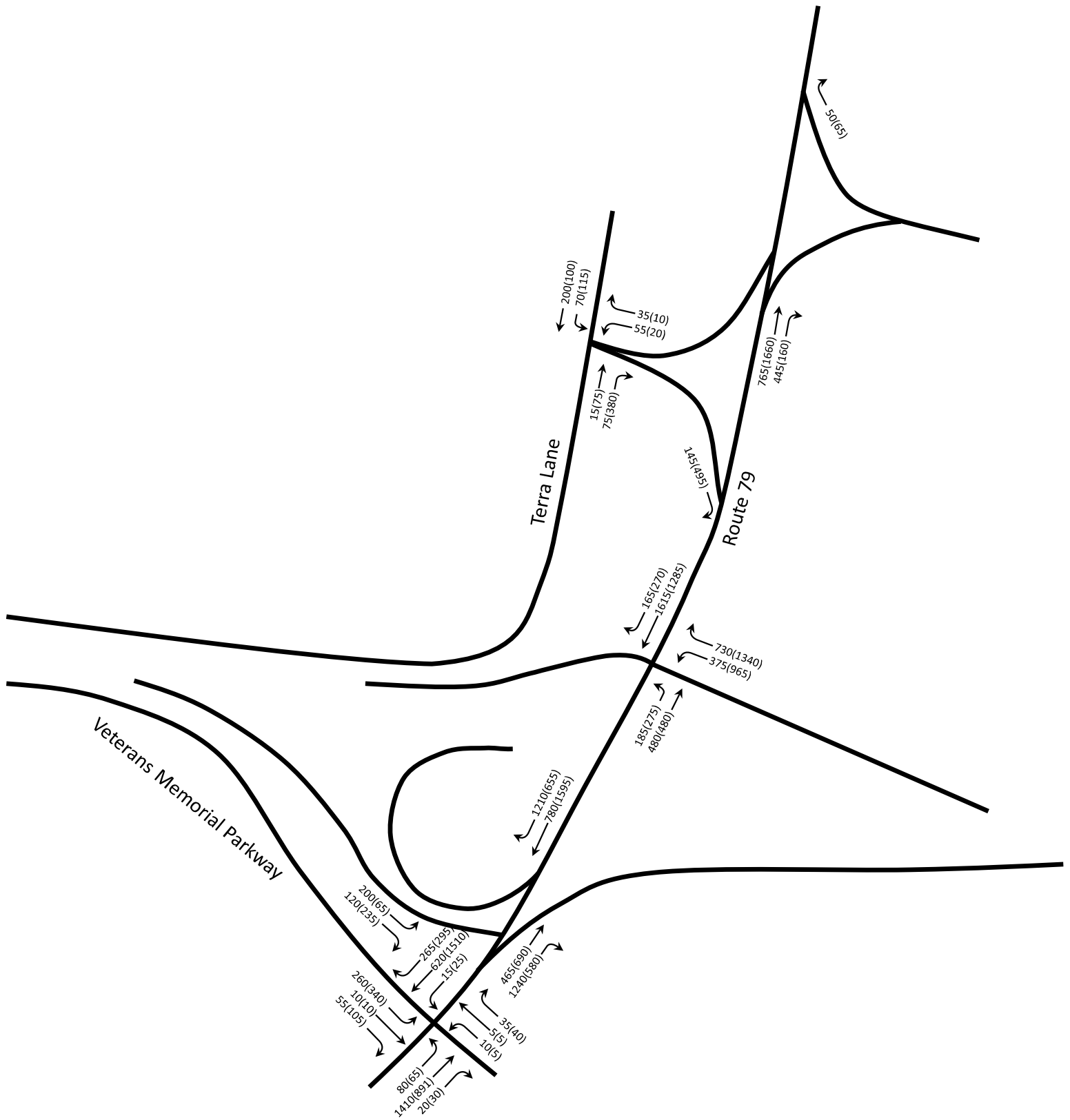
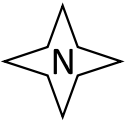
Appendix B: Intersection Forecasted Operating Conditions

Appendix C: HSM Methodology Diagrams

Appendix D: Conceptual Designs of Alternatives

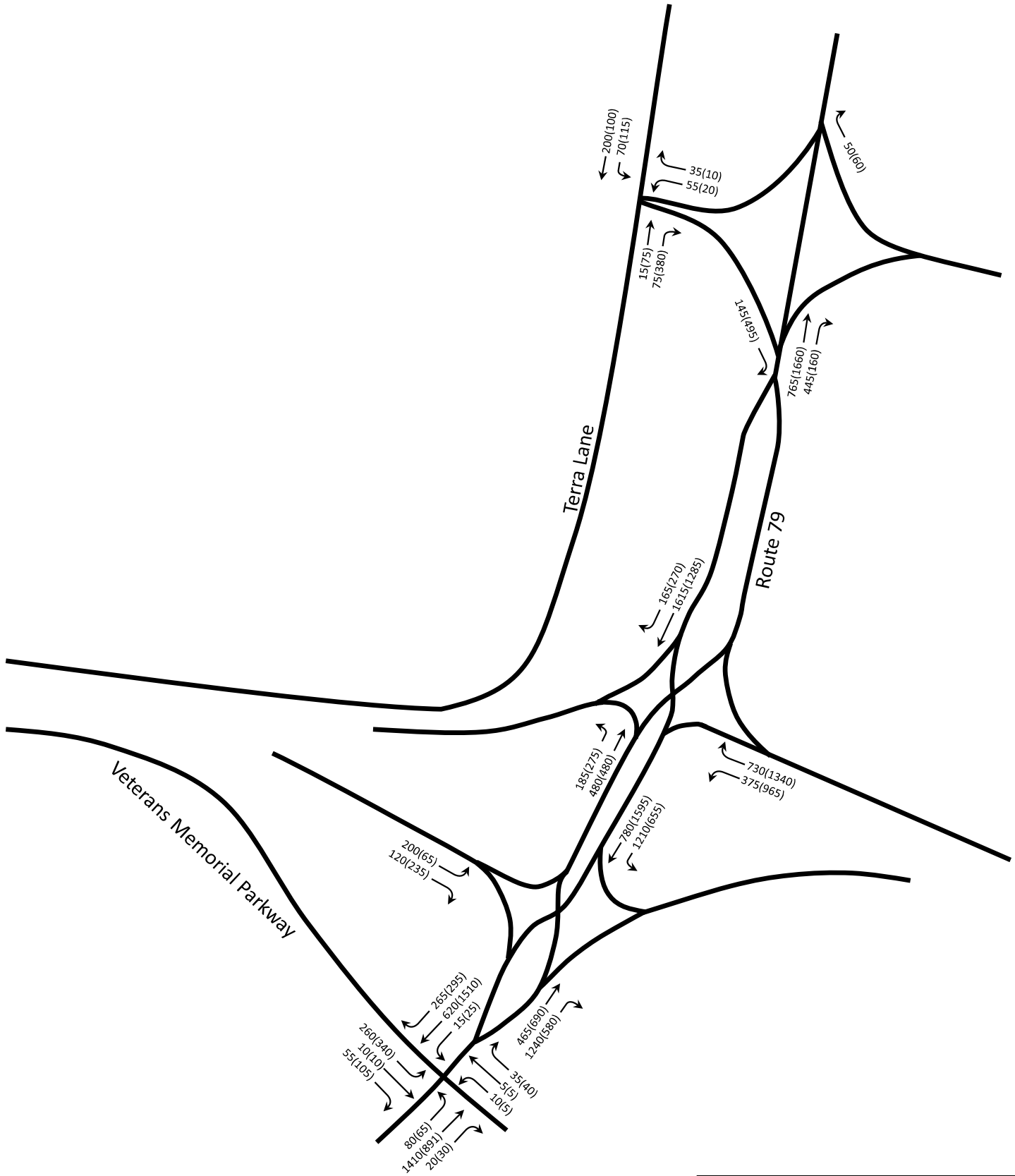
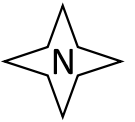
Appendix E: Conceptual Cost Estimate

Interstate 70 and Route 79



2040 No Build Traffic Volumes
XX– AM Peak Hour
(XX) – PM Peak Hour

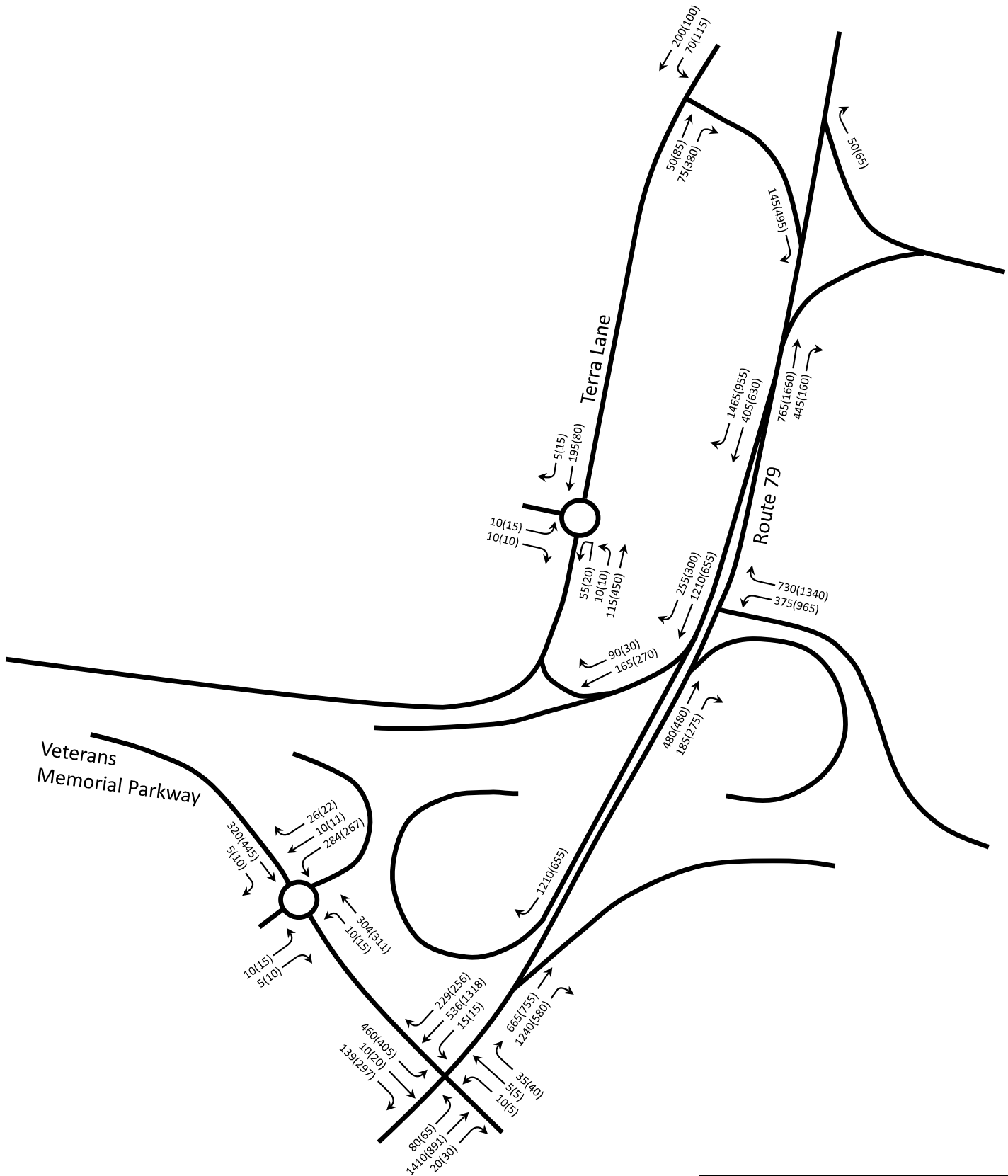
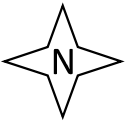
Interstate 70 and Route 79



2040 Diverging Diamond Traffic Volumes

XX– AM Peak Hour
(XX) – PM Peak Hour

Interstate 70 and Route 79



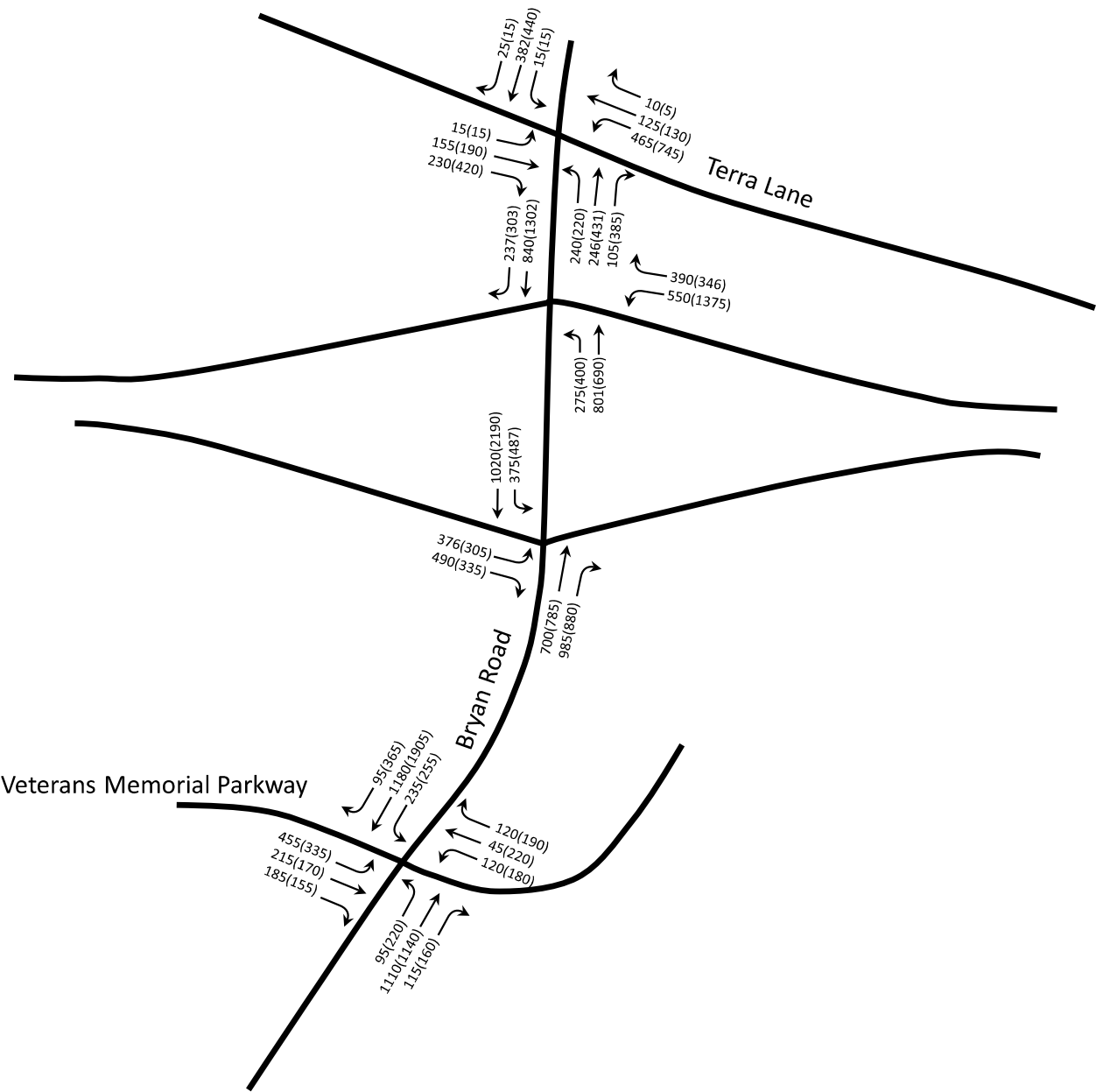
2040 Partial Cloverleaf

Traffic Volumes

XX— AM Peak Hour

(XX) — PM Peak Hour

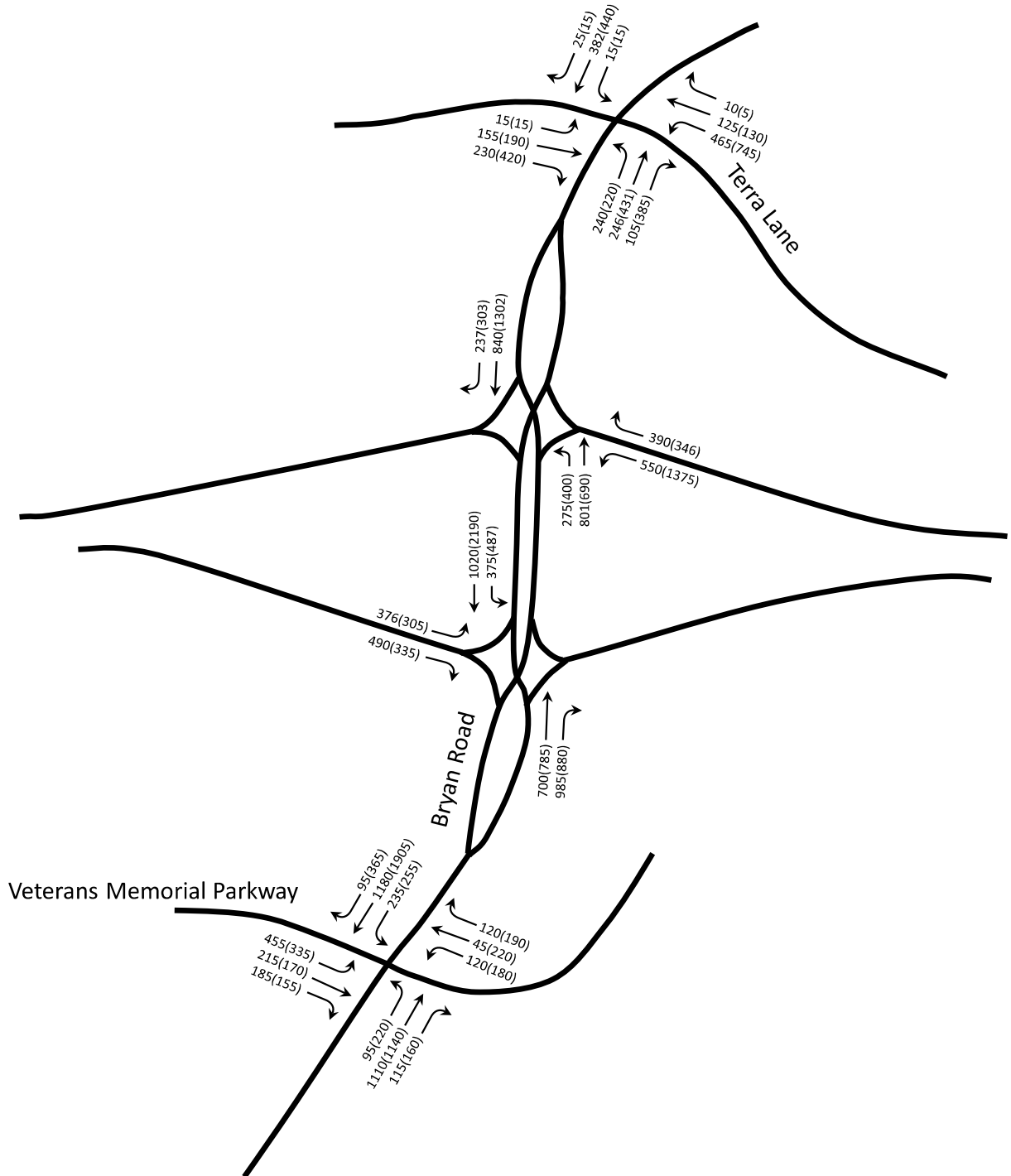
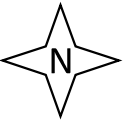
Interstate 70 and Bryan Road



2040 No Build Traffic Volumes

XX– AM Peak Hour
(XX) – PM Peak Hour

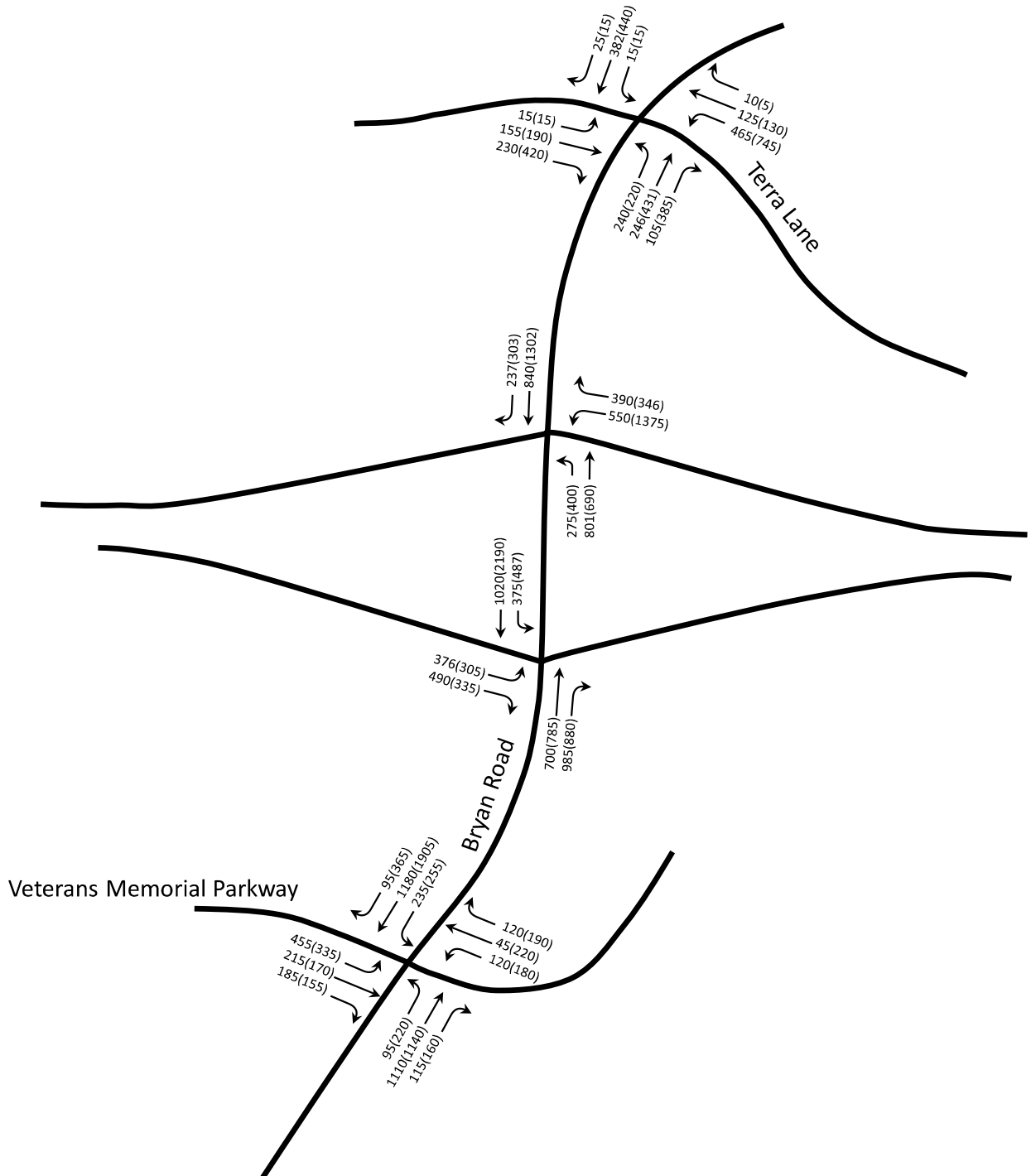
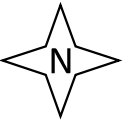
Interstate 70 and Bryan Road



2040 Diverging Diamond Traffic Volumes

XX– AM Peak Hour
(XX) – PM Peak Hour

Interstate 70 and Bryan Road



2040 Expanded Diamond Traffic Volumes

XX– AM Peak Hour
(XX) – PM Peak Hour

Appendix B: Intersection Forecasted Operating Conditions

Table B1: I-70 at Route 79/Salt Lick Rd Forecasted Operating Conditions – AM Peak Hour

Node	Movement/ Approach	Diverging Diamond			Partial Cloverleaf		
		LOS (Delay)	Average Queue (ft)	Max. Queue (ft)	LOS (Delay)	Average Queue (ft)	Max. Queue (ft)
Route 79 & WB Ramps	WB LT	C (22.3)	35	235	C (28)	42	228
	WB RT	A (1.5)	0	20	A (0.6)	0	20
	WB APPROACH	A (8.6)	35	235	A (9.9)	42	228
	NB LT	A (2.2)	0	11	B (19.1)	28	257
	NB THRU	B (12)	20	156	A (1.3)	3	139
	NB APPROACH	A (9.4)	20	156	A (1.3)	3	139
	SB THRU	C (29.6)	158	757	B (13.9)	18	178
	SB RT	A (3.4)	75	615	-	-	-
	SB APPROACH	C (27.1)	158	757	B (13.9)	18	178
	Overall	B (18)			B (11.9)		
Route 79 & EB Ramps	EB LT	A (8)	8	171	-	-	-
	EB RT	A (2.7)	1	81	-	-	-
	EB APPROACH	A (6.1)	8	171	-	-	-
	NB THRU	D (42.3)	74	345	-	-	-
	NB RT	A (6.3)	1	138	-	-	-
	NB APPROACH	B (16.3)	74	345	-	-	-
	SB LT	A (9.8)	20	533	-	-	-
	SB THRU	B (10.9)	33	634	-	-	-
	SB APPROACH	B (10.2)	33	634	-	-	-
	Overall	B (12.5)			-		
Route 79 & Veterans Memorial Pkwy	EB LT	E (57.2)	81	360	E (57.4)	127	537
	EB THRU	D (44.1)	81	360	D (39.1)	127	538
	EB RT	A (1.3)	0	37	A (1.9)	1	82
	EB APPROACH	D (47.9)	81	360	D (44.9)	127	538
	WB LT	E (56.3)	5	61	E (58.1)	6	75
	WB THRU	D (54.4)	5	61	E (67.3)	6	75
	WB RT	C (21.9)	14	96	C (27.2)	13	97
	WB APPROACH	C (32)	14	96	D (36.8)	13	97
	NB LT	B (10.8)	143	1156	B (13.5)	177	1118
	NB THRU	B (12.3)	147	1156	B (11.8)	188	1118
	NB RT	B (11.8)	165	1194	A (9.8)	205	1152
	NB APPROACH	B (12.2)	165	1194	B (11.9)	205	1152

	SB LT	D (42.3)	22	207	D (47.4)	9	101
	SB THRU	A (10)	24	207	A (4.5)	10	102
	SB RT	A (6.6)	25	226	A (2.8)	7	124
	SB APPROACH	A (9.5)	25	226	A (4.9)	10	124
	Overall	B (15.9)	0	0	B (17)		
EB On-Ramp	SB LT	A (7.4)	47	264	-	-	-
	NB RT	A (9.3)	58	393	-	-	-
	Overall	A (8.4)			-		
I-70 EB Ramp Roundabout	Overall	-			A (3.6)		
Terra Ln Roundabout	Overall	-			A (0.9)		

Delay reported in seconds per vehicle

Table B2: I-70 at Route 79/Salt Lick Rd Forecasted Operating Conditions – PM Peak Hour

Node	Movement/ Approach	Diverging Diamond			Partial Cloverleaf		
		LOS (Delay)	Average Queue (ft)	Max. Queue (ft)	LOS (Delay)	Average Queue (ft)	Max. Queue (ft)
Route 79 & WB Ramps	WB LT	B (19.4)	63	568	C (23.2)	84	777
	WB RT	A (3.6)	4	289	A (3)	18	599
	WB APPROACH	B (10.3)	65	568	B (11.5)	84	777
	NB LT	A (3.8)	0	65	B (16.1)	22	212
	NB THRU	A (2.7)	3	65	A (0.7)	0	95
	NB APPROACH	A (3.1)	3	65	A (0.7)	0	95
	SB THRU	D (37.4)	120	464	C (24.9)	44	240
	SB RT	A (9.1)	37	327	-	-	-
	SB APPROACH	C (32.4)	120	464	C (24.9)	44	240
	Overall	B (16.5)			B (13.5)		
Route 79 & EB Ramps	EB LT	A (9.5)	3	87	-	-	-
	EB RT	B (15.6)	21	266	-	-	-
	EB APPROACH	B (14.1)	21	266	-	-	-
	NB THRU	D (53.4)	147	509	-	-	-
	NB RT	A (1.6)	17	274	-	-	-
	NB APPROACH	C (29.7)	147	509	-	-	-
	SB LT	A (3)	20	386	-	-	-
	SB THRU	B (16.4)	79	586	-	-	-
	SB APPROACH	B (12.5)	79	586	-	-	-
	Overall	B (18.3)			-		
Route 79 & Veterans Memorial Pkwy	EB LT	E (57.5)	79	295	E (55)	88	342
	EB THRU	D (47.4)	79	295	D (47.3)	88	342
	EB RT	A (5.4)	6	204	A (6.6)	28	295
	EB APPROACH	D (44.8)	79	295	D (35.2)	88	342
	WB LT	E (67.1)	4	63	E (63)	4	76
	WB THRU	E (59.5)	4	63	E (63.5)	4	76
	WB RT	B (11.8)	10	99	B (13.4)	9	98
	WB APPROACH	C (21.1)	10	99	C (22.4)	9	98
	NB LT	C (30.2)	26	275	C (30.4)	31	313
	NB THRU	A (7.4)	27	276	A (8.3)	33	317
	NB RT	A (5.4)	40	316	A (6.9)	45	350
	NB APPROACH	A (8.8)	40	316	A (9.7)	45	350
	SB LT	B (15.5)	54	555	C (21.6)	45	493

	SB THRU	A (9.5)	56	555	A (9.8)	46	493
	SB RT	A (4.1)	60	576	A (9.1)	51	522
	SB APPROACH	A (8.8)	60	576	A (9.8)	51	522
	Overall	B (13.9)			B (15.4)		
EB On-Ramp	SB LT	A (1.5)	3	77	-	-	-
	NB RT	B (15.5)	31	217	-	-	-
	Overall	A (8.1)			-	-	-
I-70 EB Ramp Roundabout	Overall	-			A (3.2)		
Terra Ln Roundabout	Overall	-			A (1.2)		

Delay reported in seconds per vehicle

Table B3: I-70 at Bryan Rd Forecasted Operating Conditions – AM Peak Hour

Node	Movement/ Approach	Diverging Diamond			Expanded Diamond		
		LOS (Delay)	Average Queue (ft)	Max. Queue (ft)	LOS (Delay)	Average Queue (ft)	Max. Queue (ft)
Bryan Rd & Terra Ln	EB LT	C (31.1)	44	233	C (28.9)	47	245
	EB THRU	D (52.3)	44	233	D (52.9)	47	245
	EB RT	A (7.6)	41	258	A (8.4)	44	275
	EB APPROACH	C (25.1)	44	258	C (25.9)	47	275
	WB LT	D (49.9)	76	285	D (47.9)	78	274
	WB THRU	C (34)	76	285	C (32.9)	78	274
	WB RT	C (34.7)	76	285	B (16.3)	121	327
	WB APPROACH	D (46.3)	76	285	D (44.2)	121	327
	NB LT	B (17.2)	27	251	C (23.3)	43	338
	NB THRU	B (11.2)	27	257	B (17.1)	45	338
	NB RT	A (7.9)	24	257	A (5.1)	42	338
	NB APPROACH	B (10.4)	27	257	B (11.2)	45	338
	SB LT	B (15.3)	25	124	B (16.8)	29	145
	SB THRU	B (18.4)	25	124	C (20.9)	29	145
	SB RT	B (10)	46	171	B (13.7)	53	194
	SB APPROACH	B (17.8)	46	171	C (20.3)	53	194
	Overall	C (21.9)			C (22.3)		
Bryan Rd & WB Ramps	WB LT	C (32.9)	67	278	D (44.6)	66	236
	WB RT	A (7.1)	17	289	A (6.2)	50	267
	WB APPROACH	C (22.1)	67	289	C (28.7)	66	267
	NB LT	A (4.3)	47	326	E (77)	81	211
	NB THRU	C (26.7)	79	378	A (1.6)	76	211
	NB APPROACH	C (21)	79	378	C (20.6)	81	211
	SB THRU	A (9.1)	23	196	A (8.3)	16	227
	SB RT	A (2.1)	8	141	A (2.1)	0	61
	SB APPROACH	A (6.6)	23	196	A (6.9)	16	227
	Overall	B (16.4)			B (18.4)		
Bryan Rd & EB ramps	EB LT	B (11.5)	26	294	D (46.6)	70	263
	EB RT	A (5.8)	9	239	A (5.2)	20	243
	EB APPROACH	A (8.4)	26	294	C (23.6)	70	263
	NB THRU	D (35.7)	103	489	B (11.1)	122	644
	NB RT	B (11.9)	66	443	C (21.7)	83	645
	NB APPROACH	C (21.6)	103	489	B (17.4)	122	645

	SB LT	A (6.3)	9	173	C (34)	80	287
	SB THRU	B (11.6)	23	246	B (15.5)	77	288
	SB APPROACH	B (10.1)	23	246	C (20.5)	80	288
	Overall	B (14.7)			B (19.9)		
Bryan Rd & Veterans Memorial Pkwy	EB LT	D (53.1)	96	427	D (51.1)	99	389
	EB THRU	D (52.9)	95	427	D (49.6)	100	389
	EB RT	A (4.5)	76	433	A (2.9)	71	398
	EB APPROACH	D (42.7)	96	433	D (40)	100	398
	WB LT	D (49)	21	108	D (40.5)	21	112
	WB THRU	E (56.4)	21	108	E (62.8)	21	112
	WB RT	A (1.3)	0	54	A (1.4)	1	51
	WB APPROACH	C (24.9)	21	108	C (23.8)	21	112
	NB LT	E (66.2)	82	328	E (72.5)	86	369
	NB THRU	C (21.1)	82	328	C (23.4)	86	369
	NB RT	B (13.8)	124	380	B (15.2)	109	420
	NB APPROACH	C (23.7)	124	380	C (26.2)	109	420
	SB LT	D (36.5)	60	345	D (43.5)	68	309
	SB THRU	B (13.6)	60	345	A (6.4)	69	309
	SB RT	B (11)	30	294	A (4.9)	30	249
	SB APPROACH	B (17.1)	60	345	B (12.2)	69	309
	Overall	C (25.4)			C (23.8)		

Delay reported in seconds per vehicle

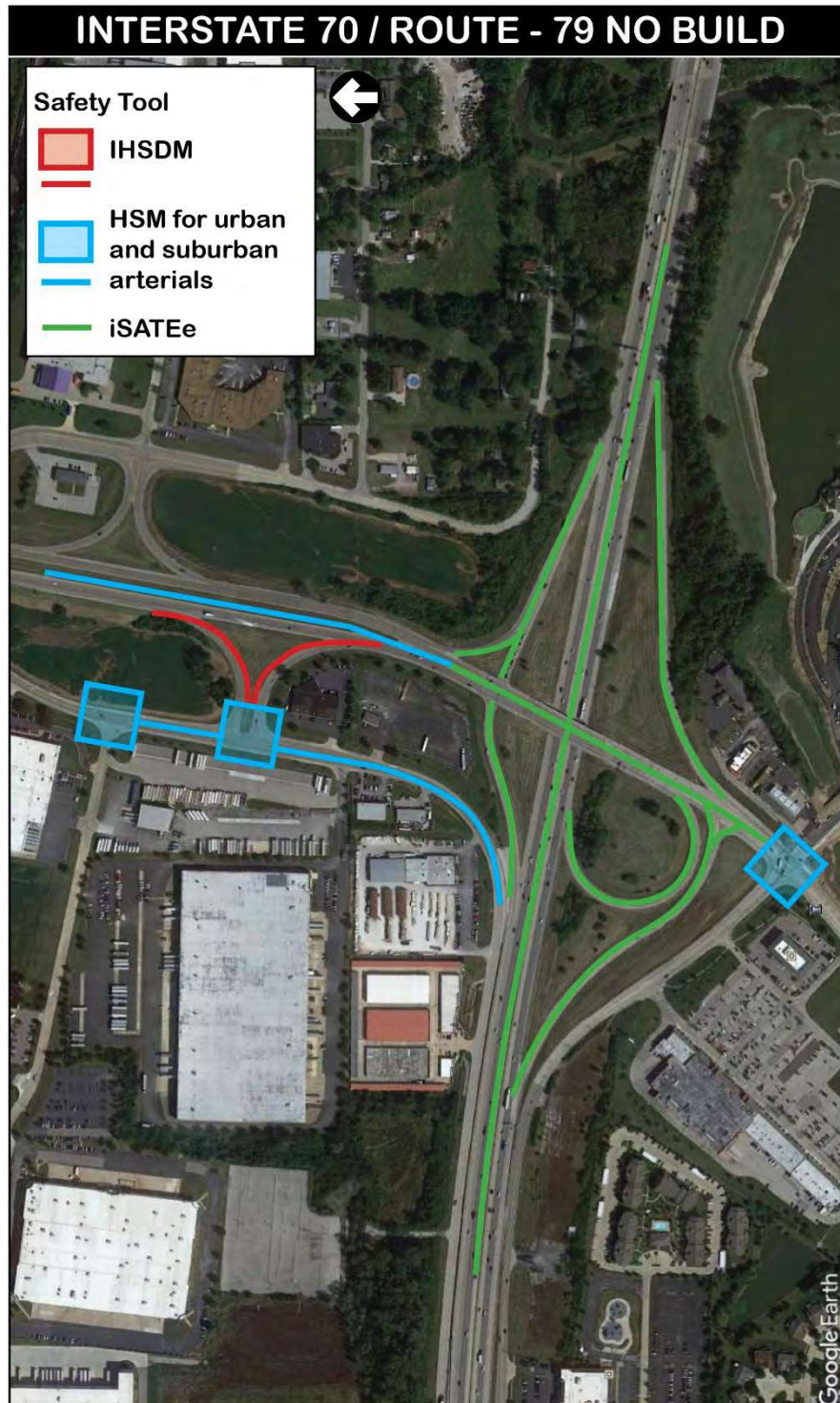
Table B4: I-70 at Bryan Rd Forecasted Operating Conditions – PM Peak Hour

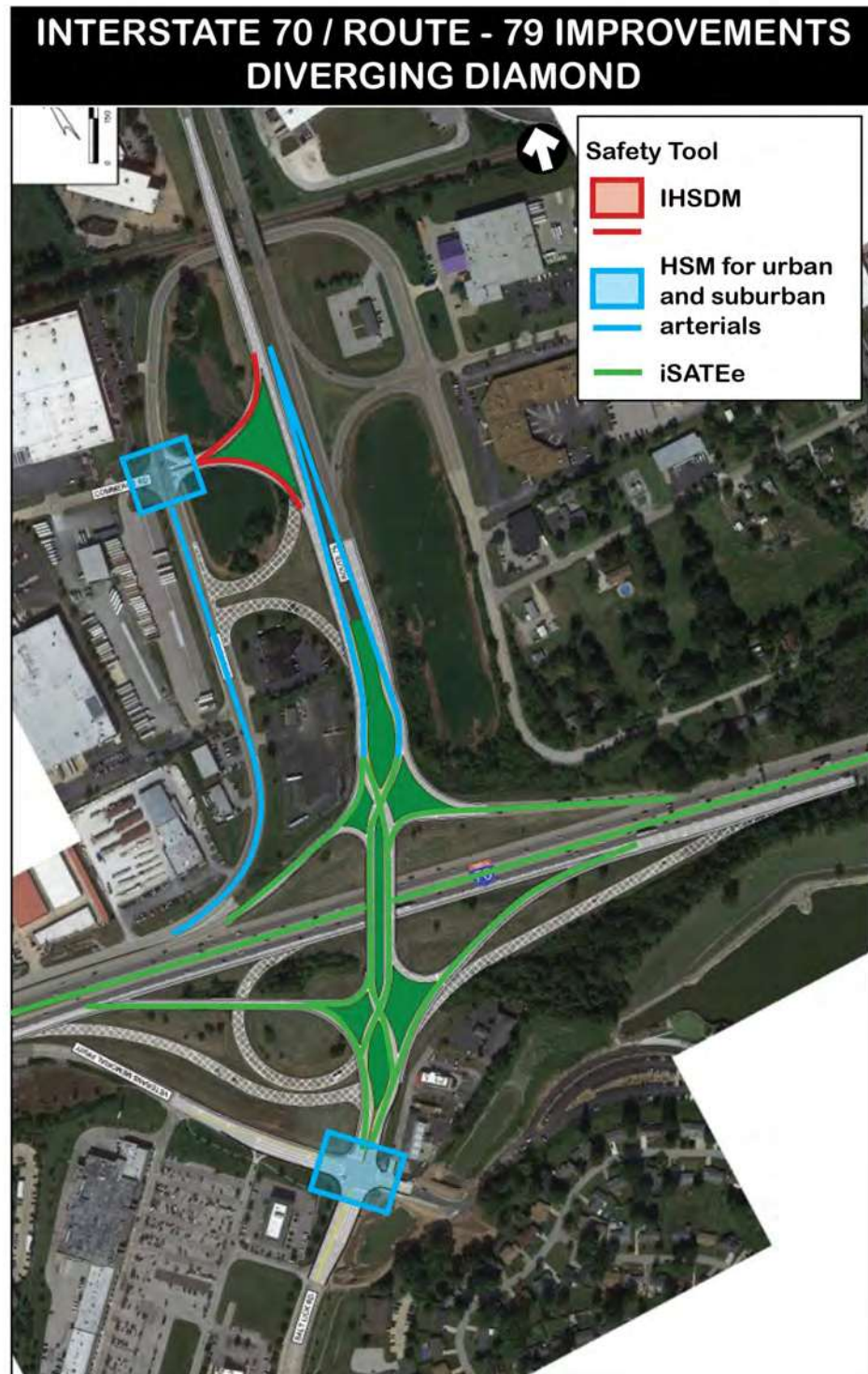
Node	Movement/ Approach	Diverging Diamond			Expanded Diamond		
		LOS (Delay)	Average Queue (ft)	Max. Queue (ft)	LOS (Delay)	Average Queue (ft)	Max. Queue (ft)
Bryan Rd & Terra Ln	EB LT	C (25.2)	76	413	C (27.4)	90	548
	EB THRU	E (55.9)	76	413	E (58.3)	90	548
	EB RT	B (15.9)	86	432	B (19.3)	101	538
	EB APPROACH	C (28.6)	86	432	C (31.7)	101	548
	WB LT	D (45.5)	108	580	D (45.7)	111	495
	WB THRU	C (25.8)	107	580	C (27.5)	111	495
	WB RT	B (12.6)	149	632	B (17.6)	156	556
	WB APPROACH	D (42.4)	149	632	D (42.8)	156	556
	NB LT	C (20.9)	70	558	C (26.1)	60	596
	NB THRU	C (23.5)	70	558	B (15.9)	60	596
	NB RT	A (5.2)	69	558	A (6.6)	72	626
	NB APPROACH	B (16.1)	70	558	B (14.4)	72	626
	SB LT	C (23.3)	52	321	C (33.1)	71	351
	SB THRU	C (29.3)	52	322	D (35.4)	72	351
	SB RT	B (19.6)	80	368	C (24.4)	105	400
	SB APPROACH	C (28.8)	80	368	C (35)	105	400
	Overall	C (28.3)			C (29.4)		
Bryan Rd & WB Ramps	WB LT	C (27.5)	142	680	D (36.5)	128	552
	WB RT	A (4.2)	6	260	A (4.6)	87	556
	WB APPROACH	C (22.8)	142	680	C (30.1)	128	556
	NB LT	A (8.2)	25	280	F (98.8)	152	387
	NB THRU	B (15.9)	46	316	B (14)	150	387
	NB APPROACH	B (13.2)	46	316	D (44.1)	152	387
	SB THRU	B (19.6)	64	245	C (23.2)	73	379
	SB RT	A (1.3)	33	198	A (3.7)	7	238
	SB APPROACH	B (15.5)	64	245	B (19.4)	73	379
	Overall	B (17.9)			C (29.7)		
Bryan Rd & EB ramps	EB LT	A (9.5)	17	234	E (57.9)	108	453
	EB RT	B (19.4)	42	382	D (37.2)	101	476
	EB APPROACH	B (14.6)	42	382	D (47.2)	108	476
	NB THRU	D (38.3)	114	506	B (14.5)	118	569
	NB RT	A (8.9)	74	459	C (20.4)	93	585
	NB APPROACH	C (22.5)	114	506	B (17.7)	118	585

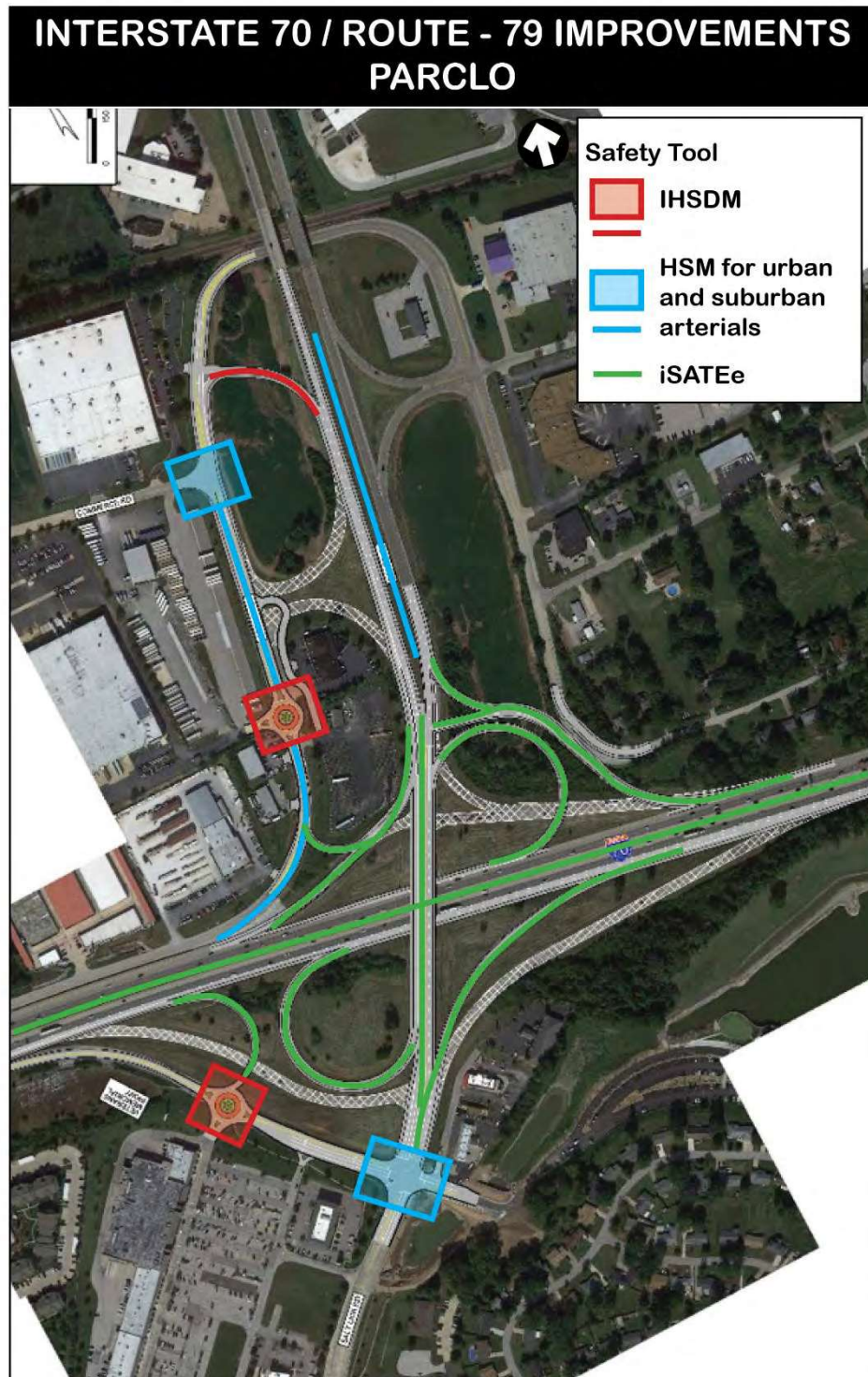
	SB LT	B (10.5)	63	422	C (34.3)	53	281
	SB THRU	B (15.3)	77	490	A (8.4)	53	281
	SB APPROACH	B (14.4)	77	490	B (13.1)	53	281
	Overall	B (17.1)			B (19.1)		
Bryan Rd & Veterans Memorial Pkwy	EB LT	D (53.6)	131	606	D (54.7)	79	304
	EB THRU	E (68.4)	131	606	D (50.7)	79	304
	EB RT	A (3.3)	96	601	A (2.6)	54	311
	EB APPROACH	D (49.3)	131	606	D (41.4)	79	311
	WB LT	D (37.5)	56	287	D (38.2)	63	388
	WB THRU	E (55.2)	56	287	E (57.6)	63	388
	WB RT	A (2.5)	3	173	A (2.6)	1	117
	WB APPROACH	C (33.6)	56	287	C (34.7)	63	388
	NB LT	F (162.3)	296	853	F (179.6)	412	1053
	NB THRU	C (27.1)	296	853	C (27.9)	412	1053
	NB RT	B (17.2)	343	902	B (17.5)	462	1102
	NB APPROACH	D (44.6)	343	902	D (47)	462	1102
	SB LT	D (50.6)	156	731	D (53.9)	321	836
	SB THRU	B (17.7)	157	731	D (38.5)	321	836
	SB RT	B (15.3)	116	682	C (32.2)	270	779
	SB APPROACH	C (20.7)	157	731	D (39.2)	321	836
	Overall	C (32.6)			D (41.4)		

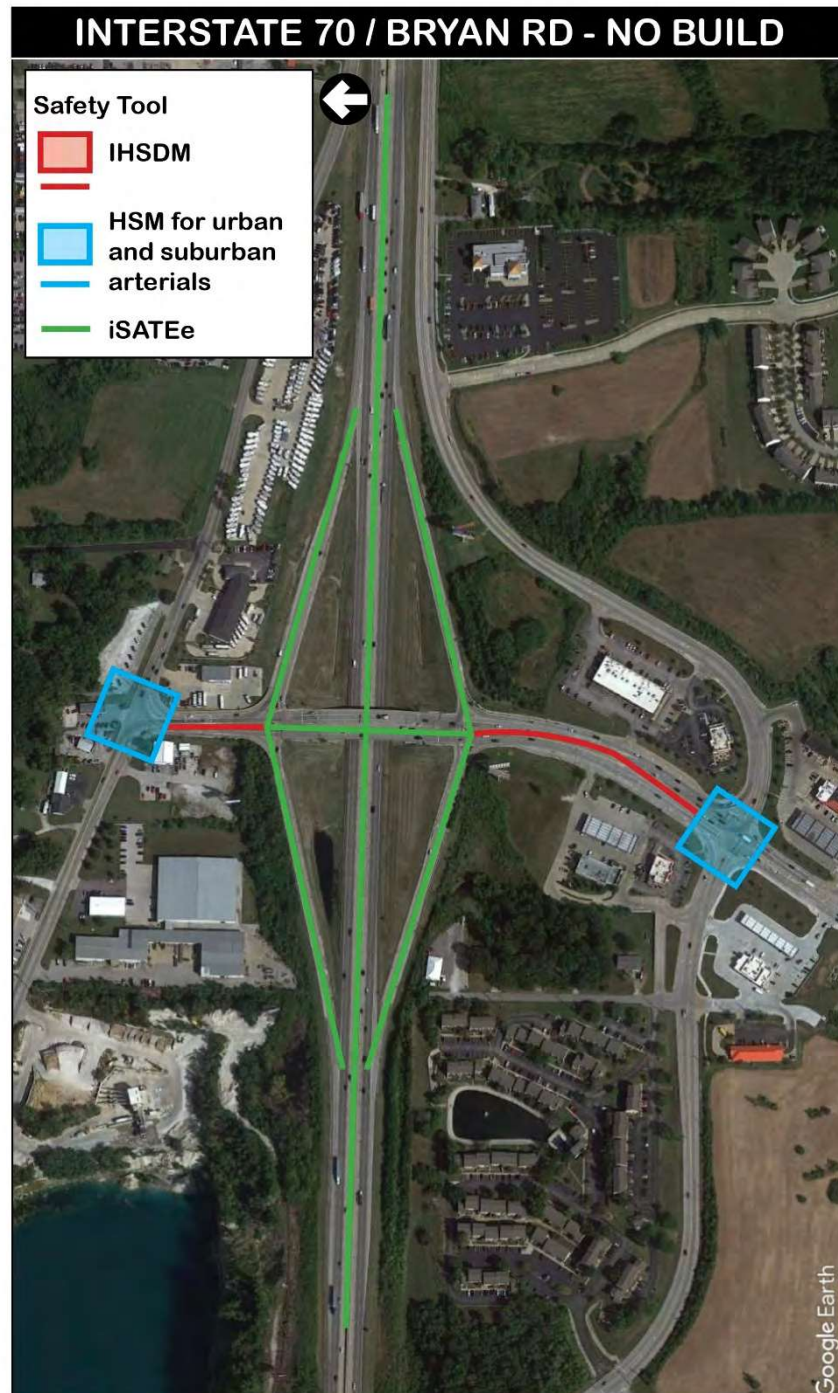
Delay reported in seconds per vehicle

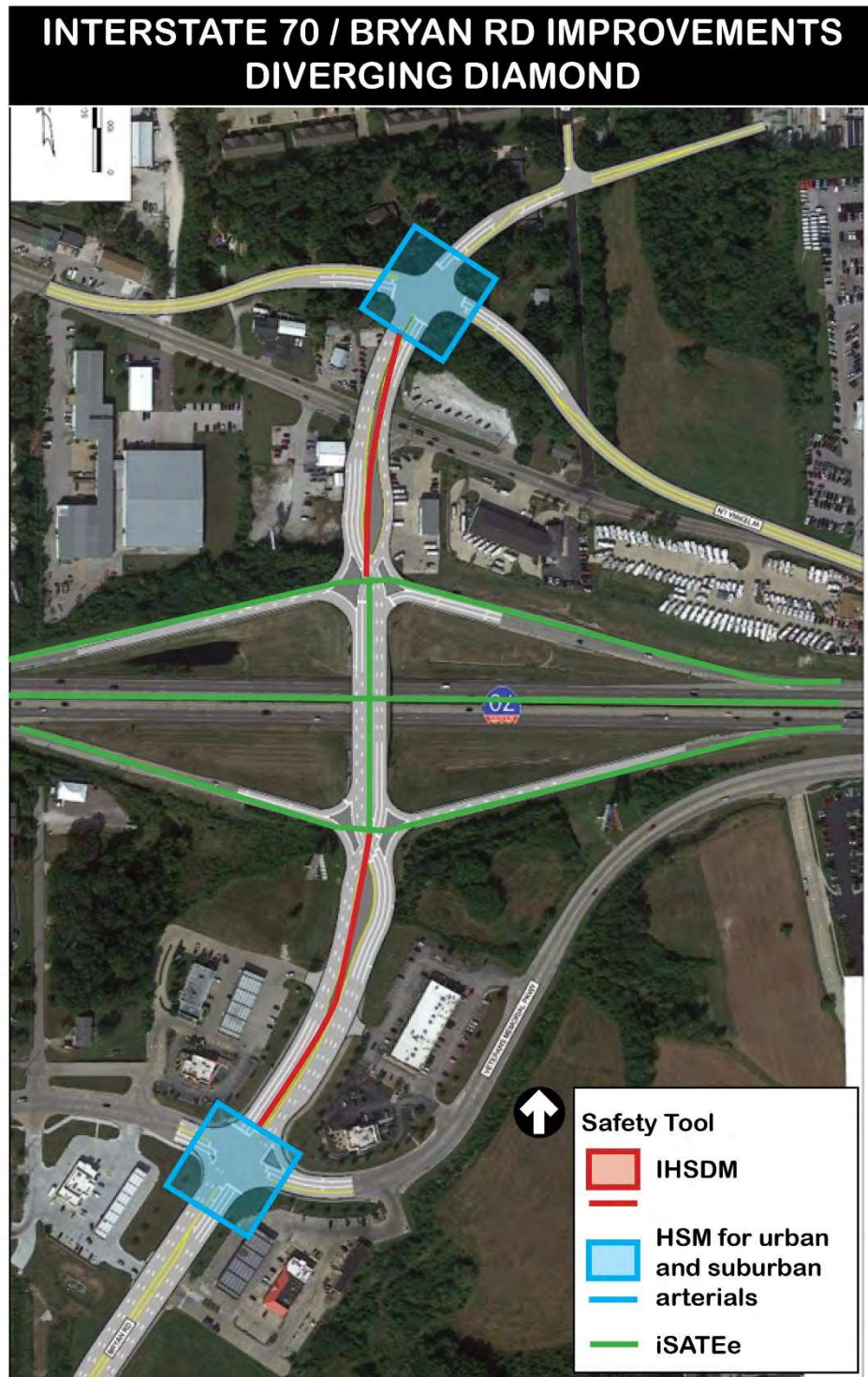
Appendix C: HSM Methodology Diagrams





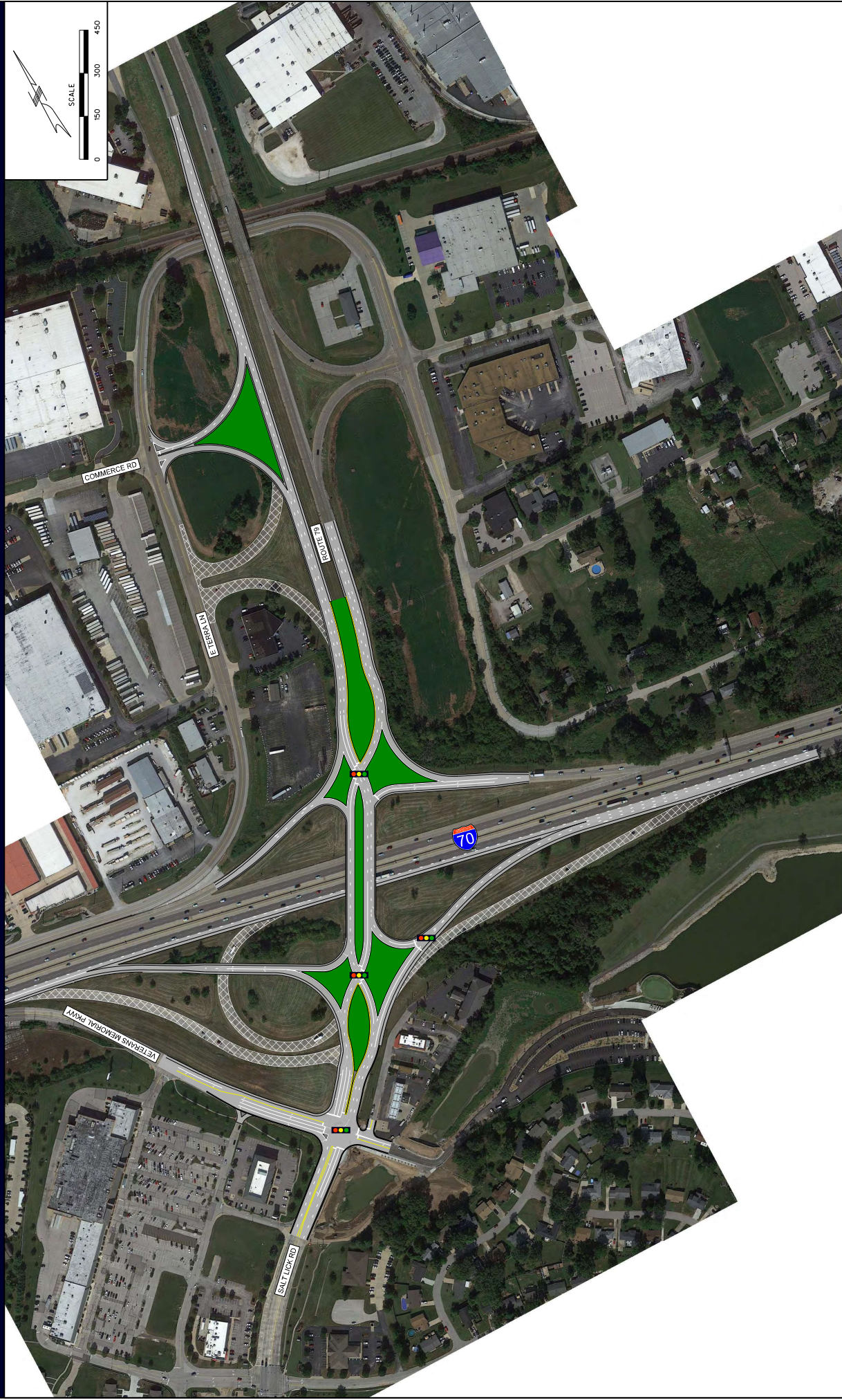




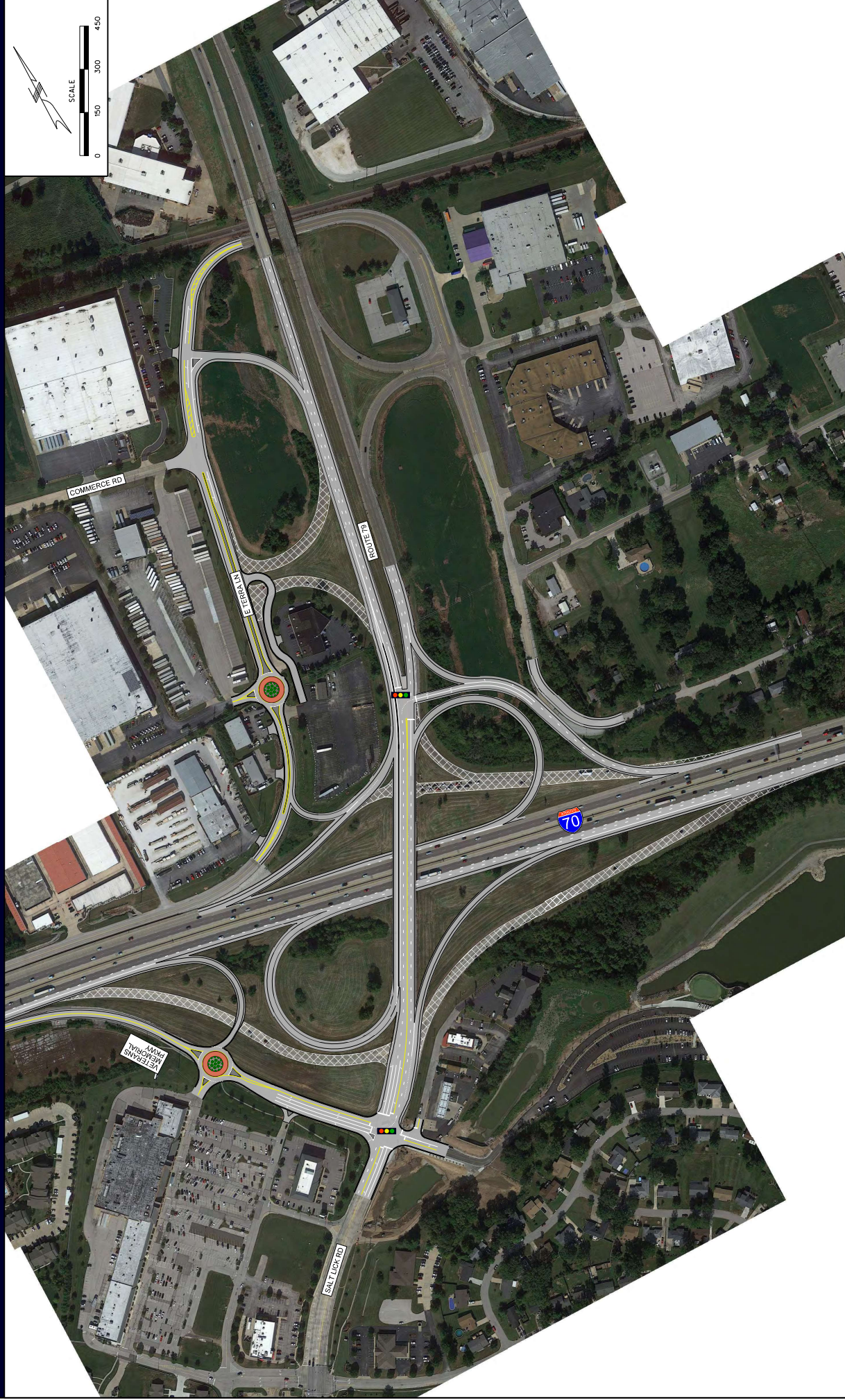




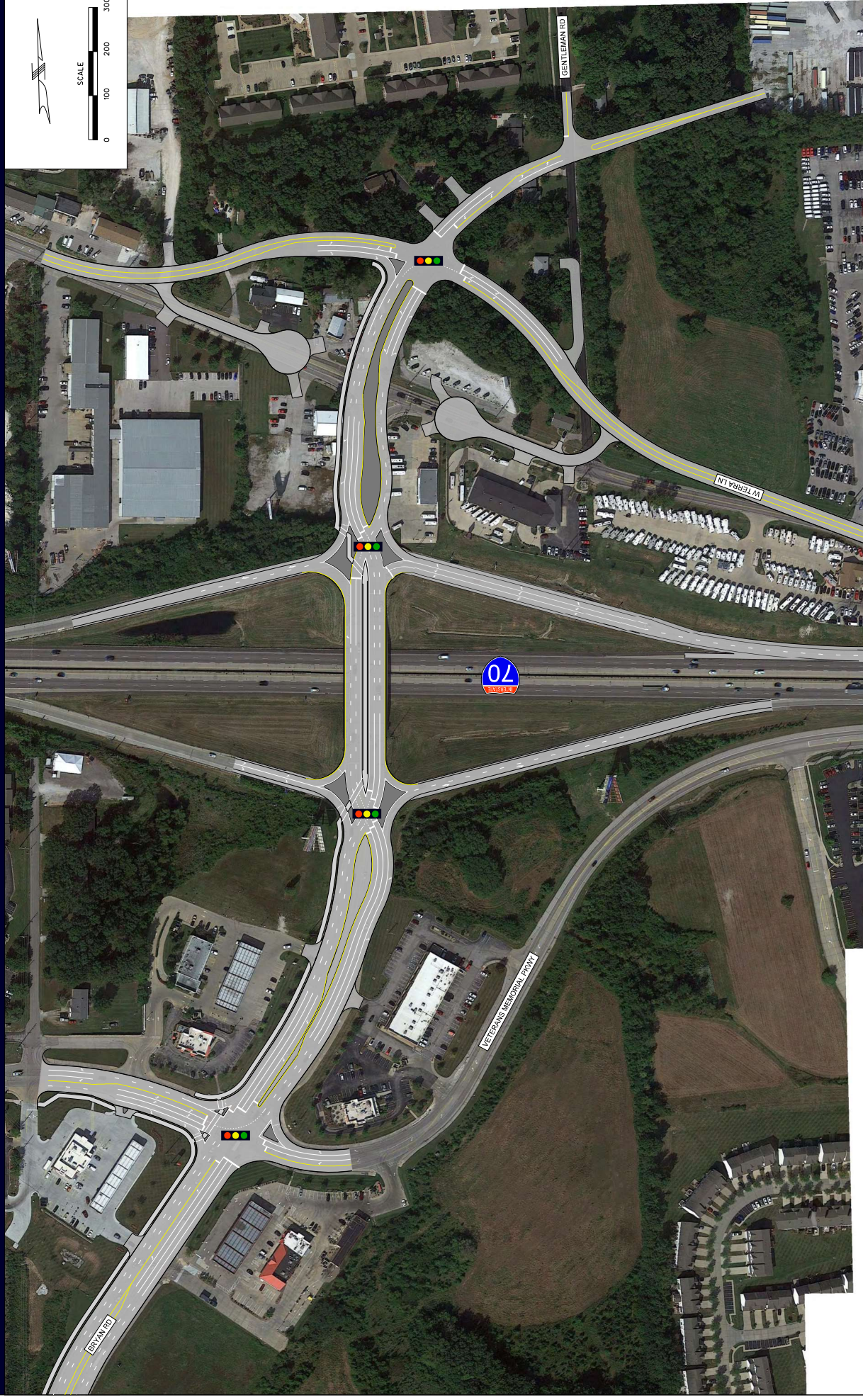
INTERSTATE 70 / ROUTE 79 IMPROVEMENTS - DIVERGING DIAMOND



INTERSTATE 70 / ROUTE 79 IMPROVEMENTS - PARCLO



INTERSTATE 70 / BRYAN RD IMPROVEMENTS - DIVERGING DIAMOND



Estimate of Project Costs

Project Sponsor: MODOT
 Project Title: Route 79 and I-70 DDI Interchange
 Date: 8/20/2020

Specific Roadway Items

Item	Quantity	Unit	Unit Price	Amount
Pavement Removal (Includes Curb, Median, Shldr, Entrances, and Sidewalk)	57,625	SY	\$15.00	\$864,375.00
Clearing and Grubbing	4	ACRE	\$10,000.00	\$40,000.00
Class A Excavation	29,436	CY	\$20.00	\$588,720.00
Compacting Embankment	49,932	CY	\$5.00	\$249,660.00
Paved Approach	174	SY	\$75.00	\$13,050.00
Aggregate Base (4")	44,328	SY	\$15.00	\$664,920.00
Concrete Pavement (Includes Curb, Median, Shldr)	44,154	SY	\$90.00	\$3,973,860.00
Remove/Replace Guardrail	2,726	LF	\$50.00	\$136,300.00
Crashworthy End Terminal	7	EA	\$3,000.00	\$21,000.00
Widen Existing Bridge	7,700	SF	\$150.00	\$1,155,000.00
Safety Barrier	800	LF	\$100.00	\$80,000.00
Lighting, Signing, Striping	1	LS	\$702,600.00	\$702,600.00
Drainage Improvements	1	LS	\$719,697.00	\$719,697.00
Landscaping	1	LS	\$269,887.00	\$269,887.00
Erosion Control	1	LS	\$179,925.00	\$179,925.00
			SUBTOTAL	\$9,658,994.00

Specific Signal Items

Item	Quantity	Unit	Unit Price	Amount
Install/Modify Traffic Signal	4	EA	\$200,000.00	\$800,000.00
ITS Equipment	1	LS	\$360,000.00	\$360,000.00
			SUBTOTAL	\$1,160,000.00

Specific Pedestrian Items

Item	Quantity	Unit	Unit Price	Amount
			SUBTOTAL	\$0.00

Miscellaneous Other Items

Item	Quantity	Unit	Unit Price	Amount
Mobilization (6%)	1	LS	\$843,000.00	\$843,000.00
Traffic Control (6%)	1	LS	\$843,000.00	\$843,000.00
Utility Relocations/Adjustments (10%)	1	LS	\$1,405,000.00	\$1,405,000.00
Construction Surveying/Staking (1%)	1	LS	\$141,000.00	\$141,000.00
				\$0.00
			SUBTOTAL	\$3,232,000.00

Construction Cost Total	\$14,050,994.00
Contingency 20%	\$3,513,000.00
Inflation (4% x 5 years)	\$3,513,000.00
Construction Subtotal (Rounded)	\$21,077,000.00
Engineering (15%)	\$3,162,000.00
Construction Engineering/Inspection (10%)	\$2,108,000.00
Right-of-Way	\$2,730,000.00
Project Total	\$29,077,000.00

Estimate of Project Costs

Project Sponsor: MODOT

Project Title: Route 79 and I-70 Partial Cloverleaf Interchange

Date: 8/20/2020

Specific Roadway Items

Item	Quantity	Unit	Unit Price	Amount
Pavement Removal (Includes Curb, Median, Shldr, Entrances, and Sidewalk)	83,033	SY	\$15.00	\$1,245,495.00
Clearing and Grubbing	4	ACRE	\$10,000.00	\$40,000.00
Class A Excavation	53,526	CY	\$20.00	\$1,070,520.00
Compacting Embankment	45,160	CY	\$5.00	\$225,800.00
Embankment in Place	35,129	CY	\$15.00	\$526,935.00
Paved Approach	654	SY	\$75.00	\$49,050.00
Aggregate Base (4")	81,121	SY	\$15.00	\$1,216,815.00
Concrete Pavement (Includes Curb, Median, Shldr)	80,289	SY	\$90.00	\$7,226,010.00
Remove/Replace Guardrail	2,297	LF	\$50.00	\$114,850.00
Crashworthy End Terminal	9	EA	\$3,000.00	\$27,000.00
Lighting, Signing, Striping	1	LS	\$1,038,000.00	\$1,038,000.00
Drainage Improvements	1	LS	\$1,616,591.00	\$1,616,591.00
Landscaping	1	LS	\$606,222.00	\$606,222.00
Erosion Control	1	LS	\$404,148.00	\$404,148.00
SUBTOTAL				\$15,407,436.00

Specific Signal Items

Item	Quantity	Unit	Unit Price	Amount
Install/Modify Traffic Signal	2	EA	\$200,000.00	\$400,000.00
ITS Equipment	1	LS	\$150,000.00	\$150,000.00
SUBTOTAL				\$550,000.00

Specific Pedestrian Items

Item	Quantity	Unit	Unit Price	Amount
Concrete Sidewalk, 4"	94	SY	\$20.00	\$1,880.00
Concrete Curb Ramps	84	SY	\$250.00	\$21,000.00
Truncated Domes	50	SF	\$50.00	\$2,500.00
SUBTOTAL				\$25,380.00

Miscellaneous Other Items

Item	Quantity	Unit	Unit Price	Amount
Mobilization (6%)	1	LS	\$1,246,000.00	\$1,246,000.00
Traffic Control (6%)	1	LS	\$1,246,000.00	\$1,246,000.00
Utility Relocations/Adjustments (10%)	1	LS	\$2,076,000.00	\$2,076,000.00
Construction Surveying/Staking (1%)	1	LS	\$208,000.00	\$208,000.00
				\$0.00
SUBTOTAL				\$4,776,000.00

Construction Cost Total \$20,758,816.00

Contingency 20% \$5,190,000.00

Inflation (4% x 5 years) \$5,190,000.00

Construction Subtotal (Rounded) \$31,139,000.00

Engineering (15%) \$4,671,000.00

Construction Engineering/Inspection (10%) \$3,114,000.00

Right-of-Way \$3,038,542.00

Project Total * \$41,962,542.00

Estimate of Project Costs

Project Sponsor: MODOT

Project Title: Bryan Rd and I-70 DDI Interchange

Date: 8/25/2020

Specific Roadway Items

Item	Quantity	Unit	Unit Price	Amount
Pavement Removal (Includes Curb, Median, Shldr, Entrances, and Sidewalk)	58,754	SY	\$15.00	\$881,310.00
Clearing and Grubbing	14	ACRE	\$10,000.00	\$140,000.00
Class A Excavation	42,901	CY	\$20.00	\$858,020.00
Compacting Embankment	64,351	CY	\$5.00	\$321,755.00
Paved Approach	2,878	SY	\$75.00	\$215,850.00
Aggregate Base (4")	70,057	SY	\$15.00	\$1,050,855.00
Concrete Pavement (Includes Curb, Median, Shldr)	64,351	SY	\$90.00	\$5,791,590.00
Remove/Replace Guardrail	1,716	LF	\$50.00	\$85,800.00
Crashworthy End Terminal	3	EA	\$3,000.00	\$9,000.00
Retaining Wall	5,000	SF	\$150.00	\$750,000.00
Widen Existing Bridge	2,675	SF	\$150.00	\$401,250.00
Safety Barrier	1,500	LF	\$100.00	\$150,000.00
Lighting, Signing, Striping	1	LS	\$907,100.00	\$907,100.00
Drainage Improvements	1	LS	\$681,819.00	\$681,819.00
Landscaping	1	LS	\$255,682.00	\$255,682.00
Erosion Control	1	LS	\$170,455.00	\$170,455.00
SUBTOTAL				\$12,670,486.00

Specific Signal Items

Item	Quantity	Unit	Unit Price	Amount
Install/Modify Traffic Signal	4	EA	\$200,000.00	\$800,000.00
ITS Equipment	1	LS	\$360,000.00	\$360,000.00
SUBTOTAL				\$1,160,000.00

Specific Pedestrian Items

Item	Quantity	Unit	Unit Price	Amount
Concrete Sidewalk, 4"	2,528	SY	\$20.00	\$50,560.00
Concrete Curb Ramps	300	SY	\$250.00	\$75,000.00
Truncated Domes	288	SF	\$50.00	\$14,400.00
SUBTOTAL				\$139,960.00

Miscellaneous Other Items

Item	Quantity	Unit	Unit Price	Amount
Mobilization (6%)	1	LS	\$1,088,000.00	\$1,088,000.00
Traffic Control (6%)	1	LS	\$1,088,000.00	\$1,088,000.00
Utility Relocations/Adjustments (10%)	1	LS	\$1,814,000.00	\$1,814,000.00
Construction Surveying/Staking (1%)	1	LS	\$181,000.00	\$181,000.00
				\$0.00
SUBTOTAL				\$4,171,000.00

Construction Cost Total **\$18,141,446.00**

Contingency 20% **\$4,535,000.00**

Inflation (4% x 5 years) **\$4,535,000.00**

Construction Subtotal (Rounded) **\$27,212,000.00**

Engineering (15%) **\$4,082,000.00**

Construction Engineering/Inspection (10%) **\$2,721,000.00**

Right-of-Way **\$6,043,570.00**

Project Total * **\$40,058,570.00**

Estimate of Project Costs

Project Sponsor: MODOT

Project Title: Bryan Rd and I-70 Diamond Interchange

Date: 8/20/2020

Specific Roadway Items

Item	Quantity	Unit	Unit Price	Amount
Pavement Removal (Includes Curb, Median, Shldr, Entrances, and Sidewalk)	59,696	SY	\$15.00	\$895,440.00
Clearing and Grubbing	14	ACRE	\$10,000.00	\$140,000.00
Class A Excavation	43,392	CY	\$20.00	\$867,840.00
Compacting Embankment	65,088	CY	\$5.00	\$325,440.00
Paved Approach	2,885	SY	\$75.00	\$216,375.00
Aggregate Base (4")	70,932	SY	\$15.00	\$1,063,980.00
Concrete Pavement (Includes Curb, Median, Shldr)	65,088	SY	\$90.00	\$5,857,920.00
Remove/Replace Guardrail	1,716	LF	\$50.00	\$85,800.00
Crashworthy End Terminal	3	EA	\$3,000.00	\$9,000.00
Widen Existing Bridge	9,585	SF	\$150.00	\$1,437,750.00
Retaining Wall	5,000	SF	\$150.00	\$750,000.00
Safety Barrier	500	LF	\$100.00	\$50,000.00
Lighting, Signing, Striping	1	LS	\$979,900.00	\$979,900.00
Drainage Improvements	1	LS	\$681,819.00	\$681,819.00
Landscaping	1	LS	\$255,682.00	\$255,682.00
Erosion Control	1	LS	\$170,455.00	\$170,455.00
SUBTOTAL				\$13,787,401.00

Specific Signal Items

Item	Quantity	Unit	Unit Price	Amount
Install/Modify Traffic Signal	4	EA	\$200,000.00	\$800,000.00
ITS Equipment	1	LS	\$360,000.00	\$360,000.00
SUBTOTAL				\$1,160,000.00

Specific Pedestrian Items

Item	Quantity	Unit	Unit Price	Amount
Concrete Sidewalk, 4"	2,659	SY	\$20.00	\$53,180.00
Concrete Curb Ramps	300	SY	\$250.00	\$75,000.00
Truncated Domes	288	SF	\$50.00	\$14,400.00
SUBTOTAL				\$142,580.00

Miscellaneous Other Items

Item	Quantity	Unit	Unit Price	Amount
Mobilization (6%)	1	LS	\$1,176,000.00	\$1,176,000.00
Traffic Control (6%)	1	LS	\$1,176,000.00	\$1,176,000.00
Utility Relocations/Adjustments (10%)	1	LS	\$1,960,000.00	\$1,960,000.00
Construction Surveying/Staking (1%)	1	LS	\$196,000.00	\$196,000.00
				\$0.00
SUBTOTAL				\$4,508,000.00

Construction Cost Total **\$19,597,981.00**

Contingency 20% **\$4,899,000.00**

Inflation (4% x 5 years) **\$4,899,000.00**

Construction Subtotal (Rounded) **\$29,396,000.00**

Engineering (15%) **\$4,409,000.00**

Construction Engineering/Inspection (10%) **\$2,940,000.00**

Right-of-Way **\$6,048,614.00**

Project Total * **\$42,793,614.00**

Traffic Counts

Weekday Turning Movement Count															
15 Minute Counts															
DATE	TIME	INTID	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Total
12/9/2021	600	Bryan Rd @ West Terra Lane	0	6	17	28	5	0	35	0	23	0	0	0	114
12/9/2021	615	Bryan Rd @ West Terra Lane	0	3	38	46	7	0	56	0	40	0	0	0	190
12/9/2021	630	Bryan Rd @ West Terra Lane	0	9	47	69	8	0	69	0	48	0	0	0	250
12/9/2021	645	Bryan Rd @ West Terra Lane	0	21	32	61	16	0	116	0	80	0	0	0	326
12/9/2021	700	Bryan Rd @ West Terra Lane	0	14	61	82	7	0	71	0	82	0	0	0	317
12/9/2021	715	Bryan Rd @ West Terra Lane	0	20	70	101	22	0	76	0	141	0	0	0	430
12/9/2021	730	Bryan Rd @ West Terra Lane	0	27	69	129	16	0	70	0	233	0	0	0	544
12/9/2021	745	Bryan Rd @ West Terra Lane	0	18	62	116	37	0	92	0	201	0	0	0	526
12/9/2021	800	Bryan Rd @ West Terra Lane	0	4	67	61	15	0	56	0	77	0	0	0	280
12/9/2021	815	Bryan Rd @ West Terra Lane	0	6	51	51	14	0	67	0	74	0	0	0	263
12/9/2021	830	Bryan Rd @ West Terra Lane	0	14	43	71	11	0	52	0	64	0	0	0	255
12/9/2021	845	Bryan Rd @ West Terra Lane	0	13	48	68	16	0	50	1	72	0	0	0	268
12/9/2021	1100	Bryan Rd @ West Terra Lane	0	22	77	69	10	1	56	0	64	0	0	0	299
12/9/2021	1115	Bryan Rd @ West Terra Lane	0	12	64	60	28	0	50	0	71	0	0	1	286
12/9/2021	1130	Bryan Rd @ West Terra Lane	1	9	85	89	8	0	71	0	67	0	0	0	330
12/9/2021	1145	Bryan Rd @ West Terra Lane	0	19	53	77	17	0	65	0	78	1	1	0	311
12/9/2021	1200	Bryan Rd @ West Terra Lane	0	17	85	88	18	0	62	0	89	0	0	0	359
12/9/2021	1215	Bryan Rd @ West Terra Lane	0	19	57	71	20	0	65	0	89	0	0	0	321
12/9/2021	1230	Bryan Rd @ West Terra Lane	0	13	67	78	30	0	58	0	78	0	0	0	324
12/9/2021	1245	Bryan Rd @ West Terra Lane	0	22	60	74	20	0	62	0	75	0	1	0	314
12/9/2021	1500	Bryan Rd @ West Terra Lane	0	26	60	160	37	1	79	0	87	0	0	0	450
12/9/2021	1515	Bryan Rd @ West Terra Lane	0	18	59	104	23	0	53	0	111	1	0	0	369
12/9/2021	1530	Bryan Rd @ West Terra Lane	0	28	99	137	30	1	53	0	97	0	1	0	446
12/9/2021	1545	Bryan Rd @ West Terra Lane	0	22	63	125	19	0	54	0	116	1	0	0	400
12/9/2021	1600	Bryan Rd @ West Terra Lane	0	17	76	106	21	0	55	0	91	0	0	0	366
12/9/2021	1615	Bryan Rd @ West Terra Lane	0	14	50	109	36	0	52	2	138	0	1	0	402
12/9/2021	1630	Bryan Rd @ West Terra Lane	0	34	64	159	54	0	51	1	135	0	0	0	498
12/9/2021	1645	Bryan Rd @ West Terra Lane	0	19	56	153	67	0	74	0	130	0	0	0	499
12/9/2021	1700	Bryan Rd @ West Terra Lane	0	20	100	150	63	0	39	0	107	0	0	0	479
12/9/2021	1715	Bryan Rd @ West Terra Lane	0	13	77	92	17	0	44	0	115	0	0	0	358
12/9/2021	1730	Bryan Rd @ West Terra Lane	0	10	53	95	19	0	30	0	107	0	0	0	314
12/9/2021	1745	Bryan Rd @ West Terra Lane	0	10	38	101	21	1	33	0	129	0	0	0	333
12/9/2021	1800	Bryan Rd @ West Terra Lane	0	15	29	113	6	0	30	0	110	0	2	0	305
12/9/2021	1815	Bryan Rd @ West Terra Lane	0	10	16	104	21	0	36	0	118	0	1	0	306
12/9/2021	1830	Bryan Rd @ West Terra Lane	0	8	24	81	25	0	26	0	96	0	1	0	261
12/9/2021	1845	Bryan Rd @ West Terra Lane	0	7	20	83	12	0	19	0	95	0	0	0	236

Saturday Turning Movement Count															
15 Minute Counts															
DATE	TIME	INTID	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Total
12/11/2021	1000	Bryan Rd @ West Terra Lane	0	15	57	65	23	0	36	1	62	0	0	0	259
12/11/2021	1015	Bryan Rd @ West Terra Lane	0	12	39	57	21	1	49	0	70	0	0	0	249
12/11/2021	1030	Bryan Rd @ West Terra Lane	0	14	33	66	23	0	40	0	66	0	0	1	243
12/11/2021	1045	Bryan Rd @ West Terra Lane	0	18	60	72	17	1	50	0	91	0	1	0	310
12/11/2021	1100	Bryan Rd @ West Terra Lane	0	13	38	81	21	0	31	0	75	0	0	0	259
12/11/2021	1115	Bryan Rd @ West Terra Lane	0	19	41	68	13	0	36	1	73	0	0	0	251
12/11/2021	1130	Bryan Rd @ West Terra Lane	0	21	51	69	14	0	60	0	71	0	0	0	286
12/11/2021	1145	Bryan Rd @ West Terra Lane	0	14	53	70	8	0	39	0	84	0	0	0	268
12/11/2021	1200	Bryan Rd @ West Terra Lane	0	13	48	112	13	0	51	0	95	0	0	0	332
12/11/2021	1215	Bryan Rd @ West Terra Lane	0	14	45	116	22	0	45	0	86	0	0	0	328
12/11/2021	1230	Bryan Rd @ West Terra Lane	0	15	55	70	11	0	40	0	75	1	0	0	267
12/11/2021	1245	Bryan Rd @ West Terra Lane	0	18	47	83	13	0	46	0	70	0	1	0	278
12/11/2021	1300	Bryan Rd @ West Terra Lane	0	14	49	91	23	0	28	0	60	0	0	0	265
12/11/2021	1315	Bryan Rd @ West Terra Lane	0	15	32	65	18	0	39	0	82	0	0	0	251
12/11/2021	1330	Bryan Rd @ West Terra Lane	0	8	28	67	13	0	39	0	91	0	0	0	246
12/11/2021	1345	Bryan Rd @ West Terra Lane	0	16	36	84	18	0	34	0	81	0	0	0	269
12/11/2021	1400	Bryan Rd @ West Terra Lane	0	19	44	80	13	0	30	0	87	0	0	0	273
12/11/2021	1415	Bryan Rd @ West Terra Lane	0	13	30	81	11	0	32	0	92	0	0	0	259
12/11/2021	1430	Bryan Rd @ West Terra Lane	0	13	31	93	14	0	28	0	83	0	0	0	262
12/11/2021	1445	Bryan Rd @ West Terra Lane	0	11	24	87	8	0	16	0	91	0	0	0	237

O'FALLON - TERRA LANE
CRASH DATA ANALYSIS

	Date	Address	Reason	# of injuries	Fatal	Serious Injury	Minor Injury	Property Damage
	6			1	0	0	1	5
1	2017	Terra Lane @ Bryan Road	driver error	0				1
2	2018	Terra Lane @ Bryan Road	driver error	0				1
3	2018	Terra Lane @ Bryan Road	driver error	0				1
4	2018	Terra Lane @ Genteman Rd	weather	1			1	
5	2019	Terra Lane @ Bryan Road	weather	0				1
6	2019	Terra Lane @ Bryan Road	driver error	0				1
7	2019	Terra Lane @ Bryan Road	driver error	0				1
8	2019	Terra Lane @ Bryan Road	driver error	0				1
9	2020	Terra Lane @ Genteman Rd	driver error	0				1
10	2021	Terra Lane @ Bryan Road	driver error	0				1
11	2021	Terra Lane @ Bryan Road	driver error	0				1
12	2021	Terra Lane @ Bryan Road	driver error	0				1
13	2021	Terra Lane @ Bryan Road	driver error	0				1



Figure 9: Heat Map of All Non-Interstate or Expressway Crash Occurrences in the City

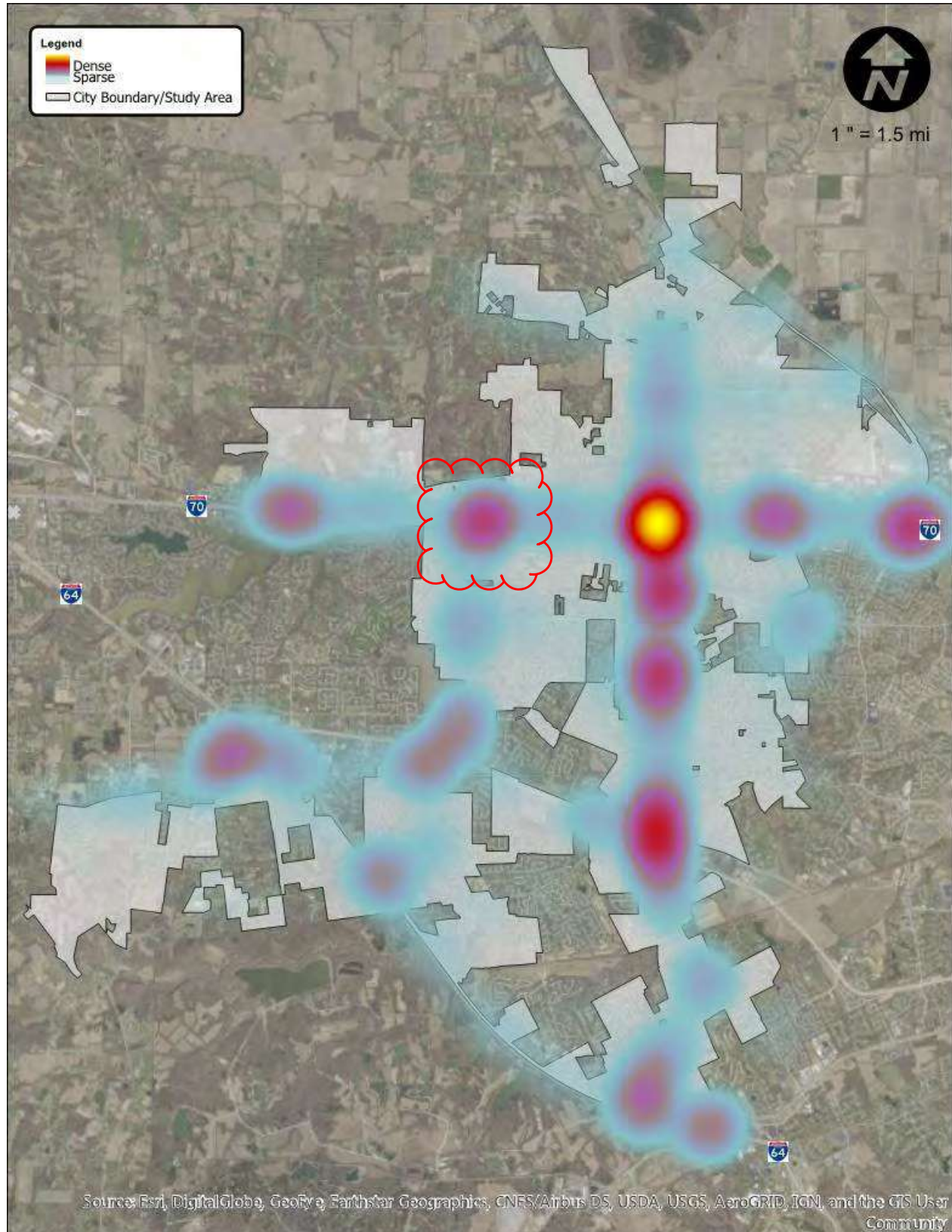


Figure 10: Heat Map of Fatal or Disabling Injury Non-Interstate or Expressway Crash Occurrences in the City

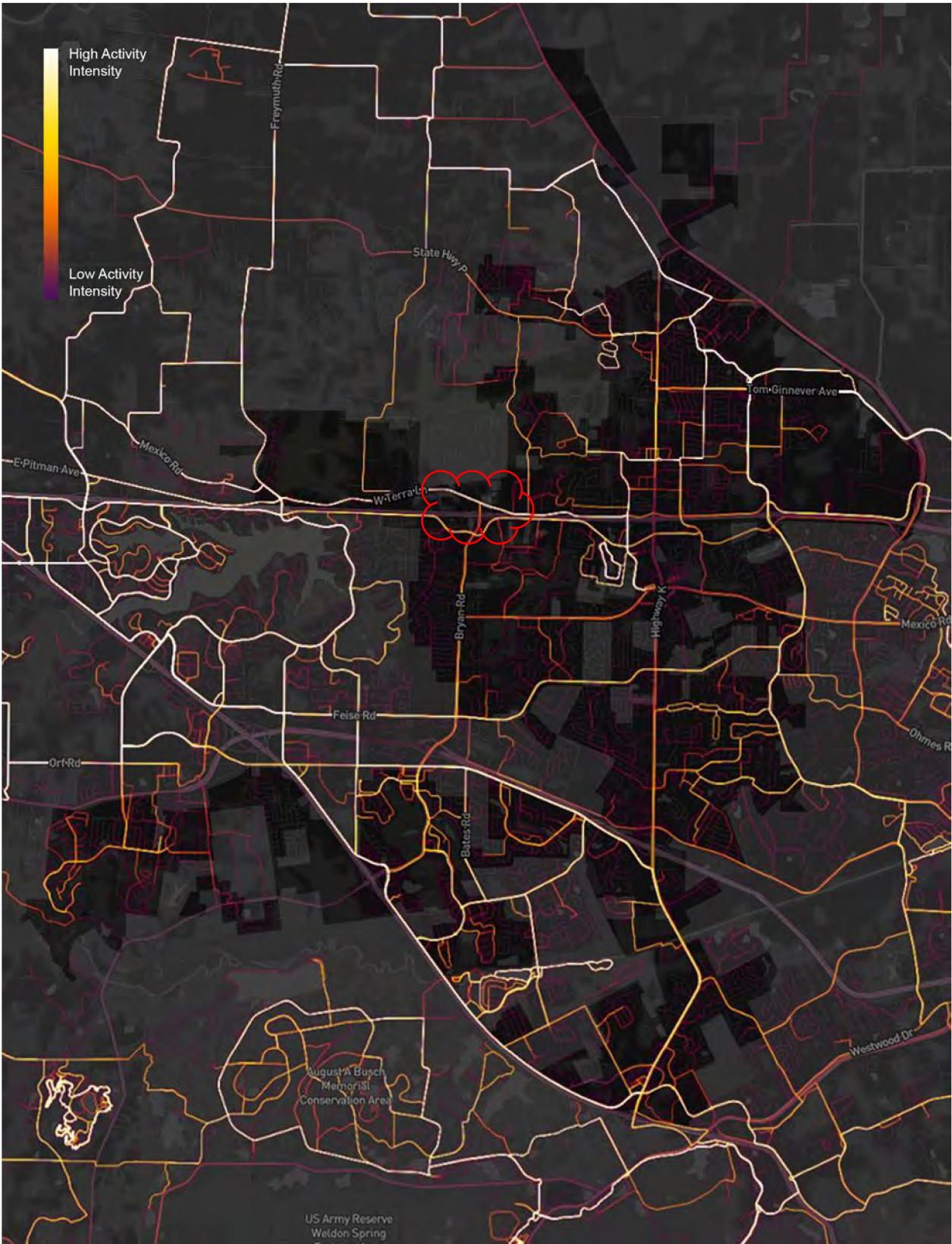


Bike Use Heat Map

CITYWIDE TRAFFIC STUDY



Figure 5: Popular Bicycling Routes



Consultant Selection Rating Sheet (Example)

City: O'Fallon
Route: Main St.
Project: Main St. Phase III Project STP-7302(690)
Date:

Consultant	Experience, Technical Competence & Project Approach (Max. points=30)	Capacity & Capability (Max. points=30)	Past Record of Performance (Max. points=30)	Total 90

Rater Comments:

Fig 136.4.7