

Exhibit A - Scope of Work

Minnesota Trunk Highway (TH) 65 Access Planning and Environmental Corridor Study

“PEL” = Planning and Environmental Linkages

Although not a “Statutory PEL,” this corridor planning study is intended to incorporate PEL principles and be consistent with the PEL approach to transportation planning and decision-making.

Project Background

Highway 65 in Spring Lake Park, Blaine, and Ham Lake is a four-lane divided principal arterial with approximately 40,000-60,000 vehicles per day in an area that is primarily residential/retail. Previous studies in the area have identified safety and operational deficiencies along TH 65 and proposals have been made to convert TH 65 to a controlled-access freeway system. The February 2017 Principal Arterial Intersection Conversion Study showed six at-grade intersections as high needs within the proposed study area. With the realization that funding for a full freeway conversion would be prohibitively expensive, it is necessary to revise the corridor vision by exploring safety and mobility improvements that consider low-cost, high-impact improvements. Improvements will need to work well together as a whole and be prioritized based on overall need.

The goals of this study are to identify alternatives to address the problems and needs along TH 65 between approximately County State Aide Highway (CSAH) 116 (Bunker Lake Boulevard) and CSAH 10. This includes an analysis of potential west frontage road alignments between 99th Ave NE and 109th Ave NE. The study will use public involvement to help determine purpose and need, develop objective evaluation criteria, and broadly define and vet alternatives. The study will use a performance-based practical design (PBPD) lens to focus on a system-wide approach that will optimize value, performance, and financial sustainability. Concepts should take into account the current condition of assets, maximize the remaining service life of assets, and inform upcoming projects on the corridor. The alternatives developed will be capable of accommodating the mobility and safety needs of the various users along and across TH 65 and consider the additional growth occurring along the corridor. Approximate study limits will be:

- North Limit: 800’ north of Anoka CSAH 116 (Bunker Lake Boulevard) in Ham Lake
- South Limit: 800’ south of Anoka CSAH 10 in Spring Lake Park

1 Administration and Project Management

1.1 Administration

Administration of the project will include:

- Monthly written progress reports (showing progress for the month and the progress to date for each task)
- Bi-weekly phone-call status meeting with the State Project Manager
- A project log that documents decisions and discussions of issues affecting the plan
- Invoicing
- Cost and percent completion
- Other work to complete the project tasks on time and within budget
- Correspondence with State functional units, County, Cities, Metropolitan Council, and other agencies as needed to collect data and information required for deliverables. Contractor will include State’s Project Manager and Anoka County’s contact person for this project on e-mail correspondence to other agencies that relates to this study.

1.2 Team Supervision and Coordination

Provide daily instruction and supervision of work performed by Contractor personnel and any subcontractors. This includes ongoing team meetings and coordination throughout the study.

1.3 Quality Management

Contractor will implement its Quality Management Plan (QMP) that will be used on the project as identified in the proposal. The QMP specifies how Contractor will perform Quality Assurance and Quality Control (QA/QC) activities throughout the duration of the project to deliver a quality product in a timely manner that conforms to established contract requirements.

1.4 Project Management Team Meetings

Contractor will meet monthly (18, one-hour meetings held prior to or after Technical Advisory Committee meetings defined in **Task 2**, up to 4 Contractor staff) with State’s Project Manager at Waters Edge to discuss

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the project progress. These meetings could include other study partners such as FHWA, Anoka County, Cities, and Metropolitan Council. Contractor will be responsible for scheduling the meetings and providing agendas and meeting minutes. Concurrence points for review by the FHWA will occur during scope, purpose and need, evaluation criteria, range of alternatives, and screening outcomes.

1.5 Other Coordination Meetings

Other Coordination Meetings – Contractor will meet as necessary throughout the duration of the project (up to 10 meetings) with the State’s Functional Groups or State, City or County other technical staff to discuss specific projects issues that require further coordination.

1.6 Project Schedule

Contractor will prepare and maintain a project schedule. The project is anticipated to begin in early August 2018 and conclude by March 1, 2019. The final schedule will be based on mutually agreeable dates and is subject to organizing and setting dates for the various meetings described in this Scope of Work. State review with compiled comments of Contractor deliverables are assumed to be two weeks.

Contractor Deliverables

- Monthly Invoices
- Monthly Progress Reports
- CPM Schedule
- Bi-weekly Progress Log (Outstanding Issues Matrix)
- PMT attendance, materials, agenda and meeting summary
- Coordination Meetings attendance, materials agenda and meeting summary

State Deliverables

- PMT attendance of key State staff
- Coordination meeting attendance of key State staff

2 Stakeholder and Public Involvement

2.1 Outreach and Engagement Strategies Report

Contractor will develop an Outreach and Engagement Strategies Report that outlines project goals & objectives, corridor profile, stakeholder analysis, key messages, roles and responsibilities, tools and techniques for engaging various audiences, outreach schedule, and progress measurements. This document will be used to help develop project purpose and need and will be updated twice throughout the course of the project to include public/participants’ feedback and observations from each round of community engagement.

2.2 Contact and Comment Management

Contractor will collect and document communication, coordination, comments and responses from the public in a format that is compatible with NEPA and state-required public involvement guidelines and requirements. Contractor will use a contact and comment management database to manage contact lists and track and record project interactions. The database will be available online and accessible through iOS and Android apps. Contractor will outline this process in a comment management protocol and provide timely responses to up to 100 public comments and coordinate with State as needed.

2.3 Public Open Houses

In collaboration with State, Contractor will plan, manage and summarize up to two in-person two-hour public open houses that offer public input opportunities at key milestones. The first open house will provide a project introduction, offer a forum for the public to visit with project staff, and seek to capture public vision and opinion through verbal and written comments. The second open house will present concept options and how the project team used public input and other criteria to influence these designs. Both open houses will include content and discussion regarding the development of a west frontage road between 99th Avenue NE and 109th Avenue NE in the City of Blaine.

Up to four Contractor staff will attend the public open houses and support the set-up, facilitation, and tear down of each event. Contractor should assume the public open houses will be held at a no-fee or donated location such as the City Hall in Blaine.

Informative invitation postcards will be designed by the Contractor, and printed and mailed by the State to local property and business owners to promote the public open houses and increase community participation. Contractor will work with State to develop one targeted Facebook event for notification one week prior to each open house.

Contractor will draft and deliver information exhibits to help guide public open house attendees through the project development process and clearly define input opportunities and next steps. Contractor will work with State and City(s) in advance of each public open house to prepare the agenda, define key messages, and determine displayed materials. For each public open house, Contractor will design and print a project overview handout, project layouts, comment/feedback forms, sign-in sheets, and staff nametags. A public open house summary including meeting attendance, key themes, and verbatim comments will be provided following each

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event.

2.4 Pop-up events

Contractor will supplement input received via the public open houses, online tools, and stakeholder meetings with insights gleaned from attending and soliciting public feedback at one community event. Contractor will recommend an existing, high traffic events that has a broad public appeal and are likely to attract people who live, work or travel through the project corridor. The pop-up event will occur during the initial information-gathering stage. Contractor will use online tools such as a survey or comment map (see **Tasks 2.6 and 2.7**) uploaded to iPads to capture public opinion of the existing corridor. The event will have printed general comment form and will be summarized and comments logged in the contact and comment management database.

2.5 Project Website Updates

Contractor will recommend, draft and deliver up to 20 project updates for posting to a project website hosted by the State. Content will include project background, purpose, FAQs, priorities, process, schedule, and meeting notifications, as well as ways to provide input and connect with project staff. Contractor will provide outreach materials such as the public open house exhibits in PDF format to the State for posting to the project website. The State will be responsible for posting each update, while the Contractor will be responsible for managing content development and making it ADA-compliant while using plain language.

2.6 Online Survey Tool

Contractor will create and promote an online survey that categorizes the community into different types of corridor users and engages people early on in the corridor study process. This tool represents a higher volume of engagement, but a lower quality/intensity of data. Contractor will create a short BuzzFeed-style quiz where the user is asked a series of questions and is given a customized avatar that they can share via various social media platforms. The purpose of this tool is to create awareness while also gathering a simple set of data from users. Contractor will develop a document that maps user input to avatar creation for the State to review. The survey will be accessible via a link on the project website. Survey promotions will include a targeted Facebook advertisement, direct stakeholder messages, and leveraging project partner communication channels to increase community participation. Contractor will provide a survey summary after the survey has closed.

2.7 Online Public Meeting & Comment Map

Contractor will develop an online public meeting following the second public open house to solicit feedback on the concept options from those who were unable to attend the in-person open house. Online public meetings increase participation in the public engagement process because they allow community members and project stakeholders to provide input on their own time and at their convenience. Contractor will develop up to one online public meeting that will be linked to the project website. The online public meeting will include a tour of the project information and comments from the State Project Manager. Contractor will use a targeted Facebook advertisement to drive traffic to this virtual meeting. The online public meeting will be shared with stakeholder groups to broaden visibility and participation. Contractor will provide a summary and analytics post-meeting.

Online comment maps allow users to provide geospatial input by dropping pins within the project area and adding comments. Custom comment categories can be included in the tool. Participants have the option to tag their comment to a featured category. They can also view other comments anonymously and filter them by category. Contractor-developed comment maps are optimized for mobile use and have a user-friendly comment management back-end to help the project team sort comments and better understand input. This mapping tool can be embedded within the project website as a component of or separate from the online public meeting. If it is made available as a stand-alone engagement tool, Contractor will use social media to drive traffic to the map.

2.8 Key Stakeholder Outreach & Analysis

Contractor will use qualitative interviews and workshops to identify, describe, and understand key stakeholders (including Environmental Justice populations) and consumer groups to better define community dynamics for the corridor study. Contractor will develop a draft list and methodology of selecting potential people to interview for State approval. Contractor will consider social and economic profile diversities using available Census data and input from the project partners in the selection of key stakeholders.

Up to 10 one-hour key stakeholder interview calls with key stakeholders will gather thoughts and ideas and identify potential issues within the project area. These interviews will be conducted over the phone and may be one-on-one or completed in pairs depending on respondent roles in the community.

Contractor will organize one stakeholder workshop that have commuter/community findings intertwined into the agenda. The workshop agenda will include small group discussions to encourage active participation and thoughtful and candid comments. Discussion themes could be "Technology," "Infrastructure," or "Commuting in the Future." Many of these stakeholders will be asked to participate in a project Public Advisory Committee moving forward or to recommend other participants.

Contractor will analyze and interpret the wealth of information obtained from these activities to produce a key findings summary used to identify key issues and guide the project for further public outreach and development of corridor solutions.

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2.9 Public Advisory Committee

A Public Advisory Committee (PAC) will act in an advisory capacity to the project team and include community representatives within the project area and the region, including local businesses, community services, economic development, bike and pedestrian needs, parks, and local government representatives. The PAC will meet (up to six meetings) at key milestones (accepted by the State) to guide the decision-making process for the initial stages of the project. The goal of this engagement is to listen, educate, and collaborate on identifying and prioritizing long-term, cost-effective corridor solutions. PAC members will serve in the following role:

- To be briefed on major project milestones.
- To meet quarterly, as needed.
- To serve as advisors to the project team, including reviewing materials and affirming approach, messages, and purpose and need statements.
- To identify issues in the community.
- To act as ambassadors for sharing information about the project and encouraging participation.

2.10 Post-project Analysis

HDR will develop a summary of best practices and lessons learned to benefit future projects. It will also make recommendations for improving the outreach process.

2.11 Technical Advisory Committee

Contractor will conduct up to 15 Technical Advisory Committee (TAC) meetings during the project. The project TAC meetings will be attended by stakeholders, including but not limited to: State's Project Manager, City staff (Spring Lake Park, Blaine, Ham Lake), Metropolitan Council, Metropolitan Airports Commission, and Metro Transit. This task includes agenda preparation, meeting facilitation, follow-up, and a summary of outcomes from each meeting.

Contractor Deliverables

- Draft Outreach and Engagement Strategies Report and up to two updates (electronic)
- Up to one comment management protocol (electronic)
- Up to 200 hours of contact and comment management
- Up to 12 monthly comment/response and conflict resolution tracking reports (electronic)
- Two two-hour public open houses with three HDR staff (travel time and mileage included)
- Up to two design layouts per public open house
- Up to 500 invitation postcards in advance of each public open house (1,000 total postcards)
- Up to 10 informational display boards
- Up to two versions of a project overview handout, 75 printed copies per public open house and 25 printed copies per one-on-one stakeholder meeting (400 total handouts)
- Printed comment forms, sign-in sheets, and staff nametags
- Up to \$50 in food/refreshments per public open house
- Two public open house summaries (electronic)
- Up to ten draft and final stakeholder email invites (electronic)
- Up to ten stakeholder meeting summaries (electronic)
- One three-hour pop-up events with up to two HDR staff (logistics, event staffing, travel time and mileage included)
- One pop-up event summaries (electronic)
- Up to 6 ADA-compliant project website updates (electronic)
- Draft and final online survey tool (electronic)
- Draft and final survey summary (electronic)
- Draft and final online public meeting content (electronic)
- Online public meeting summary and analytics (electronic)
- Draft and final online comment map (electronic)
- Export of map comments in an Excel spreadsheet
- Up to \$400 in Facebook advertisements to promote the in-person public open houses, online public meeting, online comment map, online survey, and pop-up events
- List of recommended PAC members and alternatives (electronic)
- Up to six PAC meeting email invites (electronic)
- Up to 18 hours of graphic design support for stand-alone PAC meeting materials
- Up to six PAC meeting summaries (electronic)
- Up to 10 stakeholder interview calls, up to one hour each
- Up to one stakeholder interview discussion guide (electronic)
- One three-hour stakeholder workshop
- Up to one stakeholder workshop agenda (electronic)
- Up to one stakeholder briefing and matrix (electronic)

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- Post-Project Analysis Summary (electronic)

State Deliverables

- State will support the stakeholder list development process by providing any previously gathered contact information to HDR and/or participating in list-building consultations
- State will host a project website and post content updates
- State will provide media outreach and support
- State will review and comment on each deliverable once before it becomes final

3 Existing Conditions

3.1 Existing Conditions Review

The following items will be reviewed and developed to be incorporated in the Existing Conditions Review document.

- **Issues Map** – Contractor will develop corridor issues map(s) that summarizes the opportunities and deficiencies in the study area.
- **Preliminary Purpose and Need Statement** – Contractor will work with project partners to develop a preliminary Purpose and Need Statement that can be supported by the project partners and be used to convey the overall need for a new corridor vision..
- **Prior Studies** - Contractor will review and summarize the primary findings and recommendations of earlier relevant studies in the study area. Contractor will list and discuss reasons of any studies that were found and determined to be no longer relevant.
- **Plans and Policies** - Contractor will review and summarize applicable State, Anoka County, City of Blaine, City of Ham Lake, City of Spring Lake Park, and Metropolitan Council plans and policies.
- **Basemapping** - Contractor will assemble a base map which includes Computer Aided Design (CAD) files, Geographic Information Systems (GIS) files, and Right-of-Way Data for use in CAD and GIS. Topographic and existing right-of-way CAD drawings will be received from State.
- **Land Use** - Contractor will summarize and map existing and planned land use. This will include identification of ownership and use based on tax records and visual inspection. Properties within previous Official Maps will be identified as well as those to accommodate the previous freeway vision. A summary will be prepared that includes a map of existing and future private land uses, environmental justice properties, as well as publically owned land, a table of property ownership and estimated values, and photo inventory property use relative to the TH 65 corridor.
- **Access Inventory** - Contractor will summarize existing access conditions including number of access points by parcel and highway segment. Current access conditions relative to State's Access Management Manual guidelines and comparable corridors will be documented. Access will be mapped and tabulated in table format.
- **Freight and Transit** - Contractor will review existing and future freight and transit operations.
- **Environmental Screening** - Contractor will review past environmental studies combined with a desktop analysis and review to provide a high level environmental screening of the corridor to identifying potential issues to be aware of as concepts are developed and evaluated. Coordination with City(s) and County staff and/or stakeholders may be required for issues that cannot be verified by mapping alone (e.g., environmental justice population identification also collected in **Task 2.8**). It is assumed field data will be limited to windshield surveys.
- **Pedestrian and Bike Analysis** - Contractor will analyze and understand existing movements and needs as well as future conditions and future improvements that may enhance operations. Existing and planned facilities will be mapped. As part of the traffic counting pedestrian and bicycle volumes will also be collected at the intersections. Field staff will also note any locations where a large number of pedestrians are crossing that may not be at an intersection that will be useful in determining supporting facility needs. Contractor will coordinate with Metro District's Pedestrian-Bicycle Planner in the development of recommendations for addressing needs of pedestrians and bicyclists.
- **Crash Analysis** – Contractor will incorporate crash data developed in **Task 5.1**
- **Traffic Conditions** – A summary of Traffic Conditions completed in **Task 4**.
- **Define Project Limits** - Contractor will define the project limits based on existing conditions findings. Possible bottlenecks outside the proposed study area will be identified, and logical termini and construction phasing should be chosen based on traffic, environmental, regional, and social impacts.

3.2 Existing Conditions Technical Memorandum

Contractor will document the existing conditions study findings, including sources of information, methodologies and assumptions, analysis and findings. This document will be updated as more is learned and

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will serve as a key document that the project partners can refer to when developing alternatives.

Contractor Deliverables

- Issues Map
- Draft and Final Technical Memorandum

State Deliverables

- Review and Accept Technical Memorandum

4 Traffic Conditions

Contractor will collect and analyze updated 15-minute turning movement and pedestrian/bicycle counts as specified below, for intersections not already counted during State's 2017 signal optimization project on Highway 65. Counts will be taken on a Tuesday, Wednesday, or Thursday when no adverse weather conditions, holidays or special events (e.g., fishing or hunting opener, major event at National Sports Center), road construction, or traffic incidents are affecting traffic. Turning movement counts must be provided as soon as available to State to be posted on State's turning movement count website.

4.1 Peak Period Counts

Contractor will collect 13-hour turning movement counts (6 AM to 7 PM) at TH 65 Right-in/Right-out and Intersections. These include up to 22 of the higher volume right-in/right-out accesses along the corridor. Contractor will prepare a map or table of proposed locations and will submit the information to MnDOT for verification before counts are scheduled.

4.2 ATR / Wavetronix

Contractor will use State Automated Traffic Recorder (ATR) station #365 will be used to determine the mainline volume on TH 65 on the north end of the corridor and determine the seasonal variability of the traffic on the corridor. State will provide supplemental mainline volume and vehicle classification data from state owned and operated Wavetronix sensors for mainline TH 65 at locations just north and south of 109th and 125th. MnDOT will use Wavetronix sensors to collect ramp volumes and classifications data at the CSAH 10 interchange.

4.3 Off-System Intersection Data

Contractor will coordinate with State, County, and City authorities to identify and collect turning movement counts available for off-system intersections. Contractor will record date of last count. Locations will be limited to the intersections that are anticipated to be majorly affected by traffic volume shifts and focus on the corridors on the west and east sides of TH 65 and intersections directly adjacent to TH 65.

Contractor will submit a map of available and useable turning movement counts. Contractor will identify off-system locations recommended to be counted to support the study. With MnDOT approval, contractor will collect 13-hour turning movement counts (6 am to 7 pm) at up to 10 locations. Counts will be scheduled at the same time as the RI/RO turning movement counts (**Task 4.2**).

4.4 Develop Existing Balanced Network

Contractor will use annual and seasonal variability adjustment factors from ATR #365 (developed in **Task 4.2**) to adjust turning movement counts from the State's 2017 TH 65 signal optimization project. Contractor will adjust turning movement counts to reflect conditions during field observations (**Task 4.5**) and turning movement counts for RI/RO intersections (**Task 4.2**) and off-system intersections (**Task 4.3**). Contractor will develop a balanced network of intersections turning movements for the VISSIM model area (see **Task 4.5** for description of the VISSIM model area). Balanced network will be 3-hour AM and 3-hour PM peak period volumes.

4.5 Existing VISSIM Model Development

Contractor will characterize level of service (LOS) for existing conditions. VISSIM will be used to evaluate the operations and determine the level of service. The model will take into account the existing signal timings, pedestrians, bicycles, transit, and motor vehicles for a complete model of the corridor that can then be used in the analysis and for presentation. VISSIM will also be used to evaluate the weaving and potential freeway elements in one model. Analysis will follow the latest edition Highway Capacity Manual (HCM) methodology. Operational analysis will be summarized for individual problem areas as well as corridor-wide measures of effectiveness include LOS, delay, average travel time, and average travel speeds. Up to ten (10) travel-time runs will be completed in the AM Peak Period and PM Peak Period to calibrate existing conditions analysis (from just north of Osborne Road NE to just south of CSAH 16 (Andover Boulevard) / 147th Avenue NE). Contractor will also records observations regarding signal cycle failures, queuing, duration of congestion and recovery periods. Contractor will also record observations from the RTMC using MnDOT traffic cameras.

The existing conditions VISSIM model will be developed for the existing roadway under year 2018 AM and PM peak period volume conditions (to be no longer than a 3-hour model for each peak period). The existing conditions VISSIM model will be calibrated to reasonably match field conditions for volume, plus travel time and/or observed queue. Study area for the VISSIM model will include the following limits.

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- TH 65 from Osborne Road NE to CSAH 16 (Andover Boulevard) / 147th Avenue, including the following intersections:
 - Osborne Road NE [signalized]
 - 81st Avenue NE / Central Avenue NE [signalized]
 - Middletown Road [RI/RO]
 - CSAH 10 interchange
 - Lincoln Street NE / 85th Avenue NE [signalized]
 - 87th Avenue NE [RI/RO]
 - 89th Avenue NE [signalized]
 - EB TH 10 Ramp Terminal [signalized]
 - WB TH 10 Ramp Terminal [signalized]
 - Clover Leaf Parkway NE / 93rd Lane NE [signalized]
 - 97th Avenue NE [RI/RO]
 - 99th Avenue NE [signalized]
 - 101st Avenue NE [RI/RO]
 - 103rd Avenue NE [RI/RO]
 - 103rd Way NE [RI/RO]
 - CR 87 / 105th Avenue NE [signalized]
 - 107th Avenue NE [RI/RO]
 - 108th Avenue NE [RI/RO]
 - CSAH 12 (109th Avenue NE) [signalized]
 - 113th Avenue NE [RI/RO]
 - 114th Avenue NE [RI/RO]
 - 117th Avenue NE / Cloud Drive [signalized]
 - CSAH 14 (Main Street NE) interchange (including the ramp terminal traffic signal)
 - 131st Avenue NE [RI/RO]
 - 133rd Avenue NE [RI/RO]
 - CSAH 116 (Bunker Lake Boulevard) [signalized]
 - CSAH 16 (Andover Boulevard) / 147th Avenue NE [signalized]
- CSAH 10 from Able Street NE east to Pleasant View Drive NE
- TH 10 from TH 10/TH 610 split (including CSAH 51 / University Avenue WB off-ramp and EB on-ramp, but excluding ramp terminal intersections) east to Central Avenue interchange (including WB on-ramp and EB off-ramp but excluding ramp terminal intersections).
- At up to 10 intersections adjacent to TH 65 will be included based on the anticipated concept alternatives to provide comparative analysis between alternatives. Locations to be verified with MnDOT before included in the VISSIM model network

VISSIM corridor performance measures will capture the modeled modes. The MOEs that will be reported from the VISSIM analysis will include the following:

- Overall intersection, intersection approach and intersection movement vehicular delay and LOS (for each modeled intersection).
- Intersection average and max queues by movement (for each modeled intersection).
- Corridor segment and overall travel time.

4.6 Future No Build VISSIM Volume and Model Development

Contractor will use the existing balanced volume network (**Task 4.3**) and forecast volume growth (**Task 5.4**) to develop a 2020 and 2040 balanced network of intersections turning movements for the VISSIM model area (see **Task 4.5** for description of the VISSIM model area). Balanced networks will be 3-hour AM and 3-hour PM peak period volumes. Using the Existing calibrated VISSIM model, Contractor will develop a 2020 and 2040 No Build VISSIM model. VISSIM corridor performance measures will capture the modeled modes. The MOEs that will be reported from the VISSIM analysis will include the following:

- Overall intersection, intersection approach and intersection movement vehicular delay and LOS (for each modeled intersection).
- Intersection average and max queues by movement (for each modeled intersection).
- Corridor segment and overall travel time.

4.7 StreetLight Analysis

Contractor will utilize StreetLight (access provided at no charge to Contractor via State) to gain insight into traffic characteristics. Using StreetLight data, Contractor will identify the origins and destinations of traffic traveling through the TH 65 corridor study area. This information will be used to evaluate potential shift of traffic from TH 65 to other corridors for longer “regional” trips.

4.8 Traffic Technical Memorandum

Contractor will prepare a technical memorandum to summarize the traffic operational analysis results. The technical memorandum will include a section on construction and calibration of the VISSIM model, a section on existing conditions, plus a section summarizing the traffic operational analysis results for the VISSIM evaluated alternatives. The list of MOEs from Task 4.5 will be included as part of the technical memorandum.

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This task includes one meeting between the Contractor and State to review the memorandum.

Contractor Deliverables

- Map of Turning Movement Counts Collected and To be Collected
- Turning Movement Counts – up to 32 intersections
- Existing Conditions and No Build VISSIM Files
- Traffic Data MOEs
- Draft and Final Technical Memorandum

State Deliverables

- Approval of Turning Movement Count Locations
- Turning Movement Counts
- ATR and Wavetronix Data
- Access to StreetLight Data
- Review and Accept VISSIM Models
- Review and Accept Technical Memorandum

5 Traffic Forecasting

5.1 General Traffic Forecasting

Contractor will participate in a workshop with MnDOT, Met Council and Anoka County staff to review land use assumptions in the Twin Cities Regional Activity Based Travel Demand Forecast Model. The workshop will review corridor 2040 land use projections and see if they are consistent with local planners' latest assumptions. A compelling rationale will be noted for any proposed changes to the Metropolitan Council's land use assumptions, including known future development plans that might be incorporated into the model. It is assumed that Met Council will be responsible for rerunning PopGen if land use changes are required as a result of the workshop. Any adjustments that result from the workshop cannot change the "control total" number of households or jobs for that Minor Civil Division from the control total already established by Metropolitan Council for that model scenario.

Contractor will develop base year and 2040 forecasts using the Twin Cities Regional Activity Based Travel Demand Forecast Model with Metropolitan Council approved forecasted Socio-Economic data. Forecast data will be reported for the TH 65 corridor and the significant cross streets and parallel routes that are included in the Twin Cities ABM. Significant cross streets are limited to corridors crossing TH 65 at signalized intersections or at a grade-separated interchange. Significant parallel routes are limited to I-35W, CSAH 51 (University Avenue), CSAH 52 (Radisson Road). Essential to the forecasting information will be a corridor analysis of trip origination and destination using the traffic counts and StreetLight Origin-Destination (O-D) data collected to provide a generalized O-D understanding.

5.2 Review Past Forecasting

Contractor will review the previous forecasting efforts that have been conducted for the corridor in recent history (roughly last 10 years), to assist in the understanding of the methodology and assumptions that went into the development of recent forecasting efforts for the corridor. Contractor will provide a brief description of these forecasting efforts and a comparison between the assumptions and processes of the Anoka County Travel Demand Model and the Twin Cities Regional Travel Demand Model and ultimately the current Twin Cities Regional Activity Based Travel Model to be used for the forecasts.

5.3 Develop Travel Demand Forecasts

Contractor will work with stakeholders to arrive at an agreement on travel forecast methodology and assumptions consistent with State and Metropolitan Council guidelines and best practices. The modeling will be based on the Metropolitan Council approved forecasted Socio-Economic data control totals. Historic volume trends will be reviewed to test reasonableness of forecasted volumes. It is proposed that the travel demand model be used to provide the base conditions and forecasts that will be developed for the area. Understanding of the existing travel shed in the area is that there are few alternate routes. Review of the regional differences and discussions with State will be used to develop the baseline forecast volumes for the area. Possible regional alternatives include other corridor improvements outside of the direct study area such as improvements to I-35 which may serve the same trips as TH 65.

Contractor will submit and present travel demand forecasting models and methodologies to State and Met Council for approval. Forecasts must be approved prior to using for any purposes including, but not limited to, capacity analysis, concept development and evaluation, public information, and project development.

Additionally it is recognized that using the regional model to evaluate volume and route changes from numerous access changes on TH 65 may not be an appropriate use of the model. As such the effort from the regional model will be to develop the baseline volume forecasts that will be used to develop the alternatives. Contractor will coordinate with the State to verify the 2020 and 2040 No Build network assumptions. It is assumed that the Met Council will provide a final network and model scenarios for the following:

- Existing conditions/Validation check

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- No-Build 2020
- No-Build – Plan horizon year (2040)

Once No-Build forecasts are approved the following additional scenarios will be modeled:

- Build Alternative A (TH 65 6-lane Arterial) – 2020
- Build Alternative A (TH 65 6-lane Arterial) – Plan horizon year (2040)
- Build Alternative B (TH 65 unconstrained freeway) – 2020 – as needed
- Build Alternative B (TH 65 unconstrained freeway) – Plan horizon year (2040)

Contractor will coordinate with MnDOT and Met Council staff on input speed and capacity assumption for each alternative type (6-lane arterial and freeway). Note that the freeway forecasts will be based on concepts developed in the previous 2005 TH 65 Environmental Assessment.

2020 and 2040 traffic volumes will be developed using the corridor alternatives to evaluate the potential regional impacts the changes to the corridor could have on the traffic in the area, if any. These volumes may then influence minor modifications to the alternative(s). The purpose of the future analysis is to determine traffic flow effects, needs for additional lanes or auxiliary lanes, frontage/backage road needs, prioritization of improvements, and access point alternatives onto TH 65, not to choose interchange alternatives. Some viable alternatives may not be modeled. Intersection alternatives modeled will be those that have the most uncertainty in effecting the footprint.

5.4 Develop Travel Demand Forecasts for Hybrid Alternative with Systems-level Analysis of Adjacent Corridors

Following the alternative testing and development in Task 7.1, traffic forecasts will be developed for a final hybrid concept selected for detailed review. Model scenarios will include:

- Build Alternative C (hybrid) – 2020
- Build Alternative C (hybrid) – Plan horizon year (2040)

Contractor will coordinate with MnDOT and Met Council staff on input speed and capacity assumption for the hybrid alternative type.

Contractor will summarize the impacts of Build Alternative C upon forecast volumes for TH 10, Anoka CSAH 10, Interstate 35W, TH 252, TH 610, as well as TH 65 south of the principal study limits. The evaluation will identify the impact of greater throughput for TH 65 upon forecast on those facilities. *This analysis will be planning-level rather than detailed.*

5.5 Current Studies

The Contractor will coordinate with the Cities and County on any current studies or comprehensive planning efforts that may have an effect on this area.

5.6 Forecasting Technical Memorandum

Contractor will prepare a technical memorandum to summarize the travel demand forecast preparation and results. The technical memorandum will include a section on the socioeconomic data used in the travel demand model. This task includes one meeting between the Contractor and State to review the memorandum.

Contractor Deliverables

- Workshop attendance, materials, agenda and summary
- Technical Memorandum review attendance, materials, agenda and summary
- Brief document summarizing forecasting methodology and assumptions used to develop travel forecasts, and subsequent reasonableness checks of results, per MnDOT's *Revised Guidelines for Twin City Travel Demand Forecasts Prepared for the Metropolitan District* memorandum dated May 10, 2006.
- Forecasts for the following years: 2020 and design year (2040), including average annual daily traffic, AM peak hour volume and PM peak hour volume, by direction as appropriate.
- One paper and one electronic copy of the draft Technical Memorandum, three copies of the final Technical Memorandum one electronic copy in PDF and one Microsoft Word copy.
- Graphic representation (i.e., maps) of existing volumes plus forecast years 2020 and 2040

State Deliverables

- Workshop attendance
- Approval of Forecasts (No Build and Build)
- Technical Memorandum Review Attendance
- Review and Accept Technical Memorandum

6 Safety Analysis

6.1 Existing Conditions Crash Analysis

Exhibit A - Scope of Work

Contractor will obtain crash data for the past 5 and 10 years. Five-year crash data will be analyzed and findings reported while 10-year data will be used to confirm trends and provide historic perspective. Due to the change in A-injury crash reporting with deployment of MnCRASH, the Contractor will coordinate with MnDOT to acquire information on statewide or metro trends in A-injury crash frequency. Contractor will verify that any change in A-injury crash frequency for the TH 65 study area is similar to percent changes for statewide or metro area. Crash data will be provided by Metro Traffic Engineering from the Department of Public Safety (DPS) database. Crash types and locations will be analyzed to determine crash patterns and will provide a basis for the benefits analysis of options.

Safety along TH 65, at current intersections and access points within the corridor limits (CSAH 10 in Spring Lake Park to CSAH 116 in Ham Lake), will be evaluated. Contractor will prepare crash summaries for the corridor and each intersection. Crash summaries will include crash rate, crash type distribution, severity distribution, light condition, and pedestrian and bicycle involvement. Contractor will prepare collisions diagrams for up to 10 intersections where the frequency, rate, severity or crash type distribution is unusual and merits a detailed review. Contractor will verify with MnDOT the 10 sites for collision diagrams. Contractor will identify potential correctable crash patterns and potential treatments for consideration during concept development.

6.2 Proposed Improvements

For the TH 65 corridor limits (CSAH 10 in Spring Lake Park to CSAH 116 in Ham Lake), Contractor will develop an existing conditions predictive safety model using IHSDM. Analysis will be completed without HSM calibration factors or Empirical Bayes. Contractor will use future no build daily forecasts (2020 and 2040) to estimate future no build crash frequencies and severity.

Contractor will quantify the safety performance of two proposed alternatives using IHSDM with results per intersection. Changes in crash frequency and severity will be summarized for the proposed changes in access or intersection/interchange type. For scenarios that cannot be adequately modeled in IHSDM, Contractor will identify and manually apply project level crash modification factors to estimate the proposed condition.

6.3 Safety Technical Memorandum

Contractor will prepare a technical memorandum to summarize the safety analysis results. The technical memorandum will include a section on existing safety performance, the evaluation of alternatives using IHSDM, any assumptions used to model unique geometry. This task includes one meeting between the Contractor and State to review the memorandum.

Contractor Deliverables

- Up to 10 Collision Diagrams
- Crash summaries along TH 65
- IHSDM files
- Draft and Final Technical Memorandum

State Deliverables

- Crash Data
- Verification of Collision Diagram Locations
- Review and Accept Technical Memorandum

7 Alternatives Development and Analysis

7.1 Alternatives Development

Contractor will develop corridor-wide alternatives that address primary and secondary access directly to TH 65 as well as local streets access to TH 65. Three primary alternative types will be considered:

- No Build Alternative; leave access as it is today.
- Ultimate improvement: Conversion to freeway conditions with revised access locations and interchange configurations.
 - Interchange concepts will be refined to meet updated traffic forecasts
 - Access modifications and interchange locations will be based on those identified in the 2005 TH 65 Environmental Assessment.
- Interim improvement consisting of several approaches to concept development will be considered, including but not limited to:
 - Maintain primary access locations and consolidate secondary and private access, consider turn lane additions/improvements, develop connectivity on the local street system to improve safety and mobility.
 - Consolidate primary access locations in addition to secondary and private access, consider partial at-grade access and improved connectivity of local streets system.
 - Establish continuous flow through movement conditions with grade separation and partial at-grade access at primary locations.
 - Innovative intersections or combination of innovative intersections and grade separation.

Exhibit A - Scope of Work

Within each approach, access locations and potential configurations will be identified and basic, conceptual designs will be completed to understand feasibility, scale, operations, capacity, cost, and Social, Economic and Environmental (SEE) impacts previously identified in **Task 3**. A footprint will be developed from the identified viable alternatives. Grade separation locations will focus on high return-on-investment solutions that target the highest risk areas addressing safety and mobility. Types of grade separations to be considered include overpasses, overpasses with right-in-right-out access, and partial and full interchanges. Alternatives will adhere to PBPD principles and are financially responsible and function well within the context of the corridor.

Concepts will be evaluated through an initial screening (Tier 1) to identify intersection concepts that may be viable concepts that warrant further consideration.

A secondary screening (Tier 2) will include a more detailed assessment of viable concepts or approaches using deterministic analysis such as HCS, Synchro, or VISTRO. This secondary screening will result in a starting point for concepts and lane configurations. Conceptual design work will commence concurrent with additional analysis. The design work will help assess the geometric feasibility of the concepts being developed while the more detailed traffic analysis will help to refine these concepts.

Traffic analysis during conceptual development work, particularly regarding innovative intersections, is likely to require microsimulation analysis. The simulation work performed during concept development will utilize subareas of the larger network and will be developed to a proof of concept level. A more detailed, calibrated analysis of these options will be performed as part of the larger corridor-level modeling.

Conceptual design of intersection options (up to two options per existing interchange (CSAH 10 & TH 10) and seven major signalized intersections) work will include two-dimensional drawings of at-grade concepts and interchange concepts with field and topographic evaluation of feasibility. Touchdown points for major grade changes will be based on estimated grade changes. Profile views will not be developed. Photo imagery of similar applications within Minnesota and throughout the country will be used to help illustrate concepts under consideration.

A final screening (Tier 3) will include a thorough review of conceptual details, how they address the project purpose and need, avoid or minimize previously identified social, economic and environmental (SEE) impacts, costs and value relative to the benefits achieved.

7.2 Cost Estimation

Contractor will develop risk-based planning level cost estimates for the alternatives developed. The Contractor will work closely with State Cost Estimating personnel on establishing assumptions and appropriate methodology. Cost Estimates will be updated for the refined freeway alternative (from the 2005 TH 65 Environmental Assessment) and up to two Concept Layouts (Task 7.9).

7.3 Supporting Roadway Network

Access and circulation needs on supporting roadways will be studied. Gaps in the supporting roadway network will be identified and with the potential links, access closures or reductions will be recommended.

7.4 TH 65 West Frontage Road Alternative Analysis

Contractor will develop two alternative concepts in addition to the concept already developed and identified in the TH 65 Environmental Assessment for the creation of a west frontage road for TH 65 between 99th Ave NE and 109th Ave NE plus extending the frontage road to tie into existing road sections north of 93rd Ave NE and south of 113th Ave NE.

Contractor will develop an Impact Matrix for each alternative. Areas to be addressed include:

- The Manufactured Home Parks (Environmental Justice Population) adjacent to the alignments,
- Potential costs of acquisition or relocations (high level appraisal),
- Environmental impacts including wetlands (based on desktop analysis), and
- Economic impact and opportunities for developable properties.

7.5 Mobility

Level of service or another suitable measure will be used to characterize current and future (forecast) mobility for single occupancy vehicles, transit, people biking, and people walking under the various scenarios considered. Level of service characterization will be performed using the VISTRO/VISSIM tools. VISTRO will be used in support of VISSIM in developing trip patterns as the corridor access changes and trips that use alternate routes based on the traffic, delay, and access on TH 65 and the alternate routes. Display of results in map and/or tabular form as is most effective for use at project meetings, possible use in handouts or presentation boards at public meetings, and inclusion in final report.

Alternatives developed are likely to require adverse travel for some movement pairs. Travel time corridors will be included in VISSIM to quantify the travel time variations to allow for direct comparison between alternatives in a manner that can be more easily explained to stakeholders.

A VISSIM analysis will be performed of the following geometric and volume scenarios:

- Minor refined freeway and interchanges (as identified in the 2005 TH 65 Environmental Assessment) with 2040 unconstrained volumes (from **Task 5.3**).

Exhibit A - Scope of Work

- Up to 2 hybrid corridors with 2040 unconstrained volumes (from **Task 5.3**).
- Sensitivity analysis of up to 2 hybrid corridors to identify constrained volumes to be used to develop TH 65 volumes needed for **Task 5.4**.

7.6 ITS

Contractor will research and evaluate innovative arterial, expressway, and freeway Intelligent Transportation System (ITS) solutions that may provide additional capacity or improve service by providing timely information to motorists such as alternate routes based on congestion.

7.7 Access

Contractor will evaluate and include connectivity options with surrounding network of county and municipal highways and streets, and consideration of non-motorized demands and connections. Identify the gaps in the supporting roadway network, especially as options are developed. Future crossing needs and barriers for non-motorized users will be identified along with future development plans.

7.8 Concept Evaluation

Contractor will develop an evaluation framework / decision methodology to assess feasibility of alternative concepts and their ability to mitigate corridor safety and mobility deficiencies as well as achieve other corridor and community goals. The attached PEL Questionnaire and Checklist will be used to assist in concept layout screening. Concept evaluation will be performed with respect to a minimum of the following:

- Technically Feasible – ability to design within acceptable engineering principles
- Economically Viable – utilization of existing investments, high benefit/low cost improvements, sustains highway-orientated business environment
- Publicly Accessible – satisfies public safety needs, motorized and non-motorized accessibility, ability to establish understanding and support of concept and benefits achieved
- Environmentally Compatible – avoidance or minimizing impacts on sensitive natural and built conditions, water resources considerations
- Contextually compatible – verifies intersection alternatives fit and function together along the corridor.

7.9 Concept Layout

Layouts will be prepared that display up to two reasonable alternative concepts. Accompanying high-level cost estimate(s) will also be prepared under **Task 7.2**. The concept layout(s) will be used to display the corridor access vision, identify individual and independent projects as well as sequencing of projects, and right-of-way needs necessary to achieve vision.

7.10 Concept Development and Evaluation Technical Memorandum

The concept development and evaluation will be documented in a technical memorandum.

Contractor Deliverables

- Tier 1 Screening Matrix
- Tier 2 Screening Matrix
- Tier 3 Screening Matrix
- Planning and Environmental Linkages Questionnaire
- Up to three Frontage Road concepts
- Up to two each Preliminary Conceptual Intersection and/or Interchange Designs at two interchange locations and up to seven high volume intersection locations
- Up to two Conceptual Layouts, Basemapping and cost estimates
- If used, CAP-X Electronic Files
- Traffic Data Reports from VISSIM and VISTRO using Highway Capacity Manual methodology
- Draft and Final Technical Memorandum

State Deliverables

- State will provide CAD drawings of freeway alternative as shown in the 2005 TH 65 Environmental Assessment.
- State will provide vertical data in dtm format of current conditions.
- State will provide topographic data in CAD format that represents current conditions outlining planimetric features within the project limits.
- State will provide right-of-way CAD drawings identifying state owned right-of-way limits.
- County and City will provide CAD or GIS files identifying County/City owned right-of-way limits.
- State review and acceptance of Technical Memorandum

Exhibit A - Scope of Work

- County and City will provide CAD drawings of right-of-way limits and available topographic data.

8 Study Documentation

8.1 Study Report

Contractor will deliver a comprehensive study report to project partners that will not only serve as documentation of the study, but as a valuable resource to be referenced as the corridor grows and evolves. The study report will contain the research, findings, next steps for NEPA-level standards, PEL process lessons learned and recommendations that were completed in this study. The appendices will contain the technical memorandums developed through the study process. Contents to include:

- Executive Summary – targeted to general audience
- Public and Agency Participation
- Existing Conditions
- Traffic Forecasting
- Development and Evaluation of Concepts
- Recommendations and Next Steps (Implementation Plan)
- Appendices to include meeting minutes, technical memorandums, cost estimates, resolutions, completed PEL questionnaire for this stage of the study.

Fifteen hard copies will be furnished to State, along with a PDF that meets ADA accessibility and branding requirements of the State’s Communications and Engagement team.

8.2 Implementation Plan

Contractor will lead study partners in developing a fiscally responsible implementation plan that prioritizes transportation improvement recommendations. The recommended concept will be divided into components with independent utility. Through discussions at the PMT level, priorities will be set and lead agencies will be defined. Recommendations on next steps will be provided, as well as the identification for potential funding sources for each investment category. Contractor will prepare an implementation matrix that summarizes the implementation approach on a project and agency level.

8.3 One-Page Summary

Contractor will prepare a one-page, double-sided summary of the study and its recommendations. Layout will include graphics and design to make the summary engaging and accessible to nontechnical audiences. One hundred hard copies will be furnished to State, along with a PDF version that meets Americans with Disabilities Act (ADA) accessibility and branding requirements of the State’s Communications and Engagement team.

Contractor Deliverables

- Executive summary brochure – 100 hard copies plus electronic
- Implementation Matrix
- Draft and Final Study Report – 15 hard copies plus electronic

State Deliverables

- Review Draft and Accept Final Report
- Review and Accept One-Page Summary
- Review and Accept Implementation Matrix

Items provided by State, County, and Cities:

- State, after authorizing the start of work, will furnish any data or material in its possession relating to the corridor that may be of use to Contractor in the execution of work.
- Data furnished to Contractor, by State, will remain the property of State and will be returned to State at the conclusion of the project, or earlier if requested.
- County and Cities will furnish any data or material in their possession relating to the corridor that may be of use to Contractor in prosecution of the work.
- Data furnished to Contractor, by County/Cities will remain the property of the respective County/City and will be returned to the respective County/City at the conclusion of the project, or earlier if requested.

Deliverable Standards

Software

- Adobe Acrobat XI or newer
- Microsoft Excel 2013 or newer

Exhibit A - Scope of Work

- Microsoft Word 2013 or newer
- MicroStation Version 8

Paper copies

- Paper copies of documents will be printed two-sided to conserve paper to the extent possible.
- Paper copies of drawings will be printed single-sided on 11×17-inch paper to the extent possible.

Electronic copies

- Electronic documents will be submitted in both PDF and in the original file format. The purpose for requesting the original file format in addition to PDF is so if an error is discovered after the project is finished, the State can edit the original file to correct the error in future printings. Electronic documents will be delivered via e-mail, ProjectWise, or file transfer protocol (FTP).