



**PERFORMANCE
DRIVEN DESIGN.**

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January 8, 2016

Ms. Amanda Ashbach, Purchasing Agent
City Purchasing – City of Duluth
Room 100 City Hall
Duluth, MN 55802

**RE: SUPERIOR STREET RECONSTRUCTION – FINAL DESIGN PHASE
(PROJECT NO. 1507, BID NO. 15-0722)**

Dear Ms. Ashbach and Members of the Selection Committee:

Reconstruction of Superior Street in Downtown Duluth is a significant and multi-faceted undertaking for the City and the involved stakeholders. Its success in providing the city a “signature street” will reinforce the retail/commercial core, will provide a meaningful civic space for events and gatherings, and will resolve infrastructure issues resulting from age and decay. Success will be contributed to by a consulting team with the experience, insight, capacity and commitment to meet the project goals and the City’s identified deadlines during the project’s final design phase. LHB and its team members are the team to complete the final design.

Ten distinct team advantages reinforce our confidence to deliver Superior Street.

Project knowledge and command - LHB with the assistance of SRF Consulting Group (LHB/SRF), has completed the comprehensive preliminary design for Superior Street. We have a firm grasp of the technical and logistical challenges involved in the reconstruction of Superior Street. Since the start of the project in early 2013, our project team has worked side by side with City staff to study and develop a project preliminary design plan that addresses the community’s needs and aspirations and that is balanced with the technical and practical demands of the project. As the City looks forward to the final design phase, we are prepared to offer a team with proven credibility and a seamless project working relationship with the City and related stakeholders forged over nearly three years of continuous project engagement.

Presence “on” the corridor - LHB offices directly on Superior Street. Our immediate presence reinforces our commitment to the project, provides access to the corridor, allows convenient meeting space and increases project efficiency. LHB is a part of Superior Street.

Capacity...we will deliver - The combined capable resources of LHB and SRF will be employed to meet the project deadlines. Our collective resources of engineers, landscape architects and technicians will be marshalled to address the project’s distinct needs and unique requirements.

City protocols and State Aid requirements - LHB and SRF have in depth experience with complex projects involving Duluth’s operating and administrative protocols and MnDOT State-Aid plan set and technical requirements. Our command of plan set formats, design requirements, details and specifications is key to meeting project deadlines and minimizing costly delays. Our experience includes complex corridor projects involving state-aid reconstruction of streets, streetscapes and utilities.



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Project management skills - Superior Street presents a multifaceted project with complex issues and defined deadlines. Effective project management is pivotal to managing team resources, communicating project needs, maintaining client/consultant collaboration and resolving project challenges. Brad Scott, LHB, will continue to provide overall project management with direct oversight of street and utility design. Barry Warner, SRF, will assist by managing streetscape, signal and lighting/electrical design. Brad and Barry worked hand in hand during the preliminary design activities with a high level of trust and respect.

Commitment to public and stakeholder involvement - The successful delivery of Superior Street’s preliminary design was supported by broad based public and stakeholder participation. Led by LHB/SRF with support from City staff, this successful engagement will continue into final design to address details and decisions related to materials, construction activities and public/private coordination. Public and stakeholder engagement will be addressed at various levels with multiple approaches to enable participation from all interested parties.

Team Collaboration - Our ability to work with staff as a “team” reinforces our ability to deliver. LHB/SRF has enjoyed and remains committed to working with City, Duluth Clean Energy, DTA, GDC, and MnDOT State-Aid staff. Members of the LHB Team will continue to work seamlessly during the final design phase.

Comprehensive team skills - LHB has assembled the best staff to address the diverse and demanding needs presented by the project’s street, streetscape, utility, and construction phasing design requirements. The respective team members are hand picked and present the credentials, experience and expertise to address the myriad of issues presented by final design.

Commitment to quality - Plan set quality is paramount to a successful project. To that end, we have committed team resources to check and cross check work products consistent with a rigid protocol. All of these activities will be led by a dedicated QA/QC manager.

Track Record - LHB has a long standing and successful working relationship with the City and a proven track record of delivering quality results. Our commitment to the City is unwavering and our team is fully committed to the delivery of this project.

In summary, LHB, SRF and each of the team members are passionate about Superior Street; the project, the intent, the schedule and its delivery. Our engagement during the preliminary design phase has established strong forward project momentum and a staff commitment at a personal level. We are your team to assist in realizing Superior Street’s successful reconstruction!

Sincerely,
LHB

Joe Litman, PE

LHB

Brad Scott, PE

SRF

Barry Warner, FASLA, AICP

GOALS & OBJECTIVES

PROJECT UNDERSTANDING

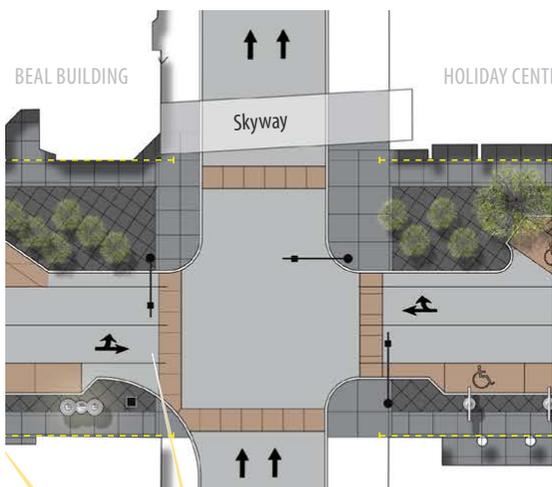


The City is requesting final engineering and landscape design services for the reconstruction of Superior Street from 7th Avenue West to 4th Ave East. The project will consist of full-depth street reconstruction and new signal systems. Utility work includes new water main and service laterals; a temporary water main to provide service during construction; conversion of the existing steam system to hot water; and new storm sewer. Private utility work (MP electrical) will occur concurrently with the project. Reconstruction of existing retaining walls and structural work related to building vaults and areaways are required. Project improvements are also anticipated to include new streetscape elements consisting of decorative sidewalks, street furniture, landscaping, lighting and other amenity features. The proposed construction duration is phased over three-years and the proposed design for the entire 11-block project length will be prepared as a single plan set in accordance with City of Duluth and MnDOT State Aid standards.

The Preliminary Design and Public Involvement Summary Document prepared by LHB/SRF is the culmination of the City's multi-year study and public involvement process. It provides a strong foundation for the final design and establishes strong

forward momentum toward project implementation. The document identifies key issues and recommendations to be addressed in the final design for the major design elements of the project. A primary factor in the success of the final design process relies on the efficient and purposeful engagement of project design staff, City decision makers, MnDOT State Aid, building/business owners, and the public at key stages in the final design to ensure that critical design issues are properly addressed and resolved to allow for subsequent design work and the forward progression of the project. The identified project schedule is fast paced and demands a project team that can hit the ground running, making forward progress through incremental decision making and stakeholder consensus with capacity to deliver.

GOALS & OBJECTIVES



The preliminary design and planning phase identified and studied the core parameters that will ultimately determine the overall success of the project. First and foremost, the project must address the fundamental street and utility needs of the project, namely replacing the aging utility infrastructure and replacing the existing brick, bituminous, and concrete streets and sidewalks that are failing in the face of ongoing traffic demand and development with a reliable design that anticipates future needs and levels of use. At a street level, the new Superior Street must also answer the public and community demands for a signature downtown street that provides a vital, pedestrian centered experience and that simultaneously fosters economic growth, community connectivity, and accessibility. To do so, the final design must ensure the efficient movement and use of the street by a wide variety of traffic modes including shopping, commuter, tourism, transit and delivery vehicle traffic as well as pedestrians and bicyclists through the management and thoughtful use of the available

space and signalization. The proposed street layout and streetscape design identified in the LHB/SRF design summary document answers many core questions related to pedestrian connection, on-street parking requirements and preferred use of the street space. The challenge of the final design will rely on the implementation and refinement of the document's recommendations on a block-by-block basis to ensure a successful outcome.

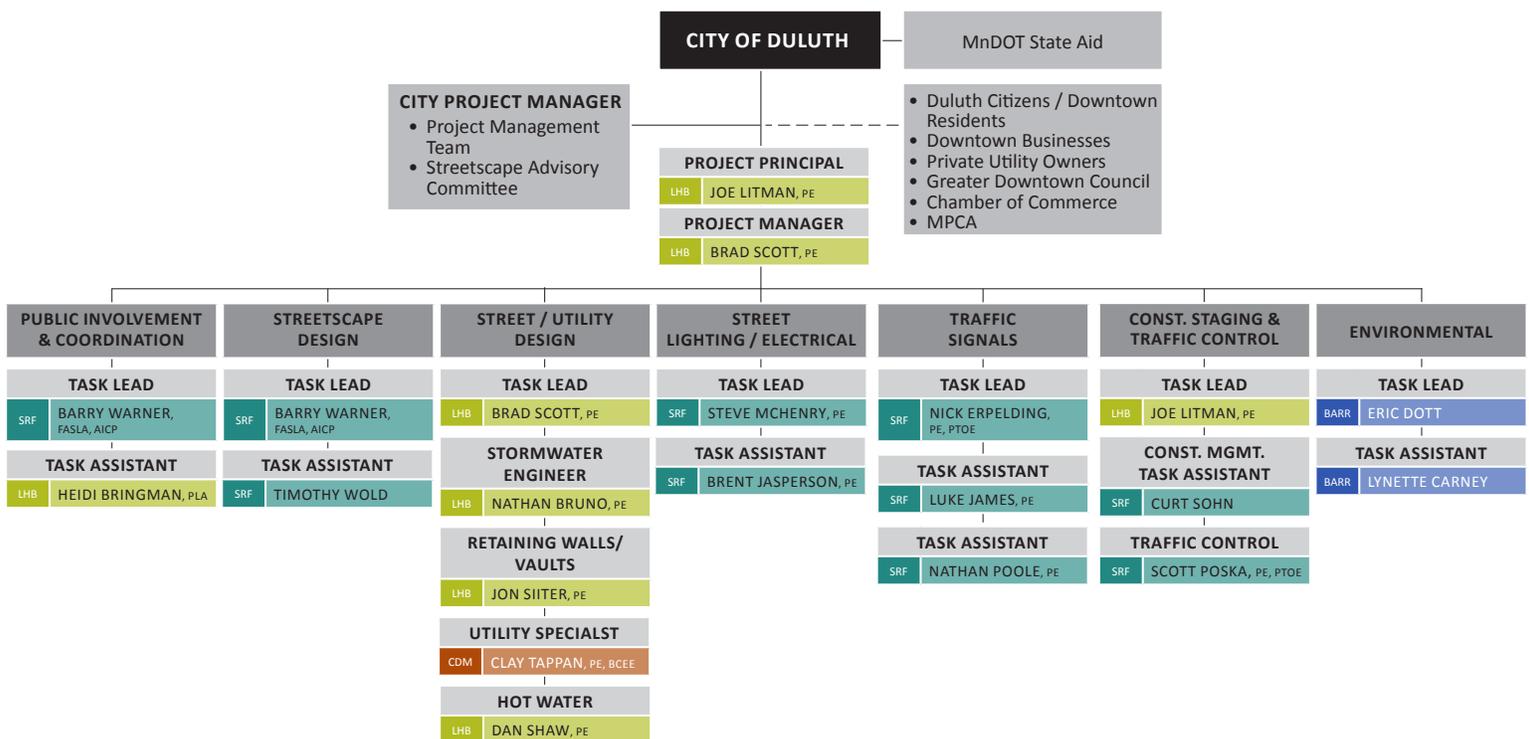
Equally important to the project's success as these built elements, the final design must also be judged on its ability to provide a construction staging and temporary traffic control plan that keeps Superior Street open and businesses readily accessible during construction. This objective is key to assist local retailers, businesses and building tenants in weathering the disruption

and disturbance caused by construction. A clear understanding of individual business requirements along the corridor including their primary access and service needs, operational requirements, and sensitivity to impacts are critical elements of the final design. The final design must convey the needs of the downtown businesses in concert with a clear understanding of the needs for the project's construction, including the likely sequencing and duration of the various work elements; contractor access needs; and the overall project schedule.

The final design must manage the project to the identified project budget and provide ongoing and regular updates affecting project construction costs as the design progresses. Cost management during the final design will require ongoing coordination between disciplines to ensure that design solutions are complementary; communication with the City to ensure informed decision making; and research and data collection to ensure accurate understanding of construction pay quantities and probable unit costs.

LHB/SRF & CITY WORKING RELATIONSHIP

LHB/SRF are committed to providing project staff with the availability, background and expertise to efficiently design the project. We are committed to this project's success. Our key project staff, including the project managers have been involved with the project from the beginning of the initial study phase. We will ensure the continuity and working familiarity necessary to keep the momentum of the project moving through design and bidding and to the start of construction.



CITY OF DULUTH STANDARDS

Since LHB's public works group started in the early 1980's, the City of Duluth has been our number one priority as a client and we feel, and hope the City would agree that we have an excellent record of delivery of projects on time and within budget. Our project staff have the working knowledge of City standards and practices garnered from scores of City projects and project types both large and small. For this project LHB/SRF have selected the leading people in our firms with the understanding needed to hit the ground running and with the proven ability to deliver quality projects for the City.

WORK PLAN

The following is a general project work plan. Included where applicable are project deliverables and required City responsibilities and action items. A detailed work plan organized by task and including sub-tasks with budget hours is provided on pages 19 and 20 of our proposal.

Task 1 - Project Management

Comprehensive, capable project management is a key ingredient to a successful project, one that produces the necessary work products within the schedule parameters and meets the quality expectations. The LHB/SRF team has committed senior staff leadership to ensure that project management delivers upon these needs. Joe Litman, LHB, will serve as project principal and will be responsible for project oversight, technical review and project quality assurance. Brad Scott, LHB, will serve as the overall project manager monitoring in-house progress to achieve project milestones and provide project deliverables on schedule and will provide day to day communication with the City's Project Manager. Brad will be responsible for overall quality control on the project. In his design role on the project, Brad will oversee the street and utility design and engineering. Barry Warner, SRF, will assist by managing the streetscape, and lighting/electrical tasks. Brad and Barry provided complementary roles in the preliminary design phase of Superior Street. Their knowledge and command of the project is invaluable going forward to maintain project momentum and build upon their knowledge of the project.

Project Management Team (PMT) - Ongoing coordination and collaboration with City staff along with members of the DTA, GDC, Duluth Energy, and MnDOT State Aid is imperative to maintain a high level of communication and efficiency. To that end, it is recommended that "PMT Meetings" be held on a monthly basis between members of the consulting team and affected city and agency staff. A set series of meeting dates would be established with a rolling agenda to address issues and challenges presented by ongoing work tasks and the project schedule. The meetings will be documented as a reference for topics addressed, decisions made, tasks that are delegated or assignments made, and other meeting coordination that is needed. Electronic communication will establish meeting agendas, distribute draft work products for advance review, and provide follow up documents. The PMT will be responsible for the review, discussion, and approval, of the key project decision milestones.

Streetscape Advisory Committee (SAC)- The summary document prepared by LHB/SRF provided recommendations for the final streetscape design including key issues to be studied, design considerations to be analyzed, and materials and stylistic components to be selected from a preferred range of alternatives based on the proposed streetscape design. As the design progresses, these issues will need be to resolved to bring the final streetscape design to maturity. Notable are the selection of colors, furniture vocabulary, the role of public art and accommodations for festivals and civic events. To that end, it is recommended that an ad hoc Streetscape Advisory Committee be formed with 5-7 members representing the GDC, businesses, city maintenance and so on. This committee will make decisions and recommendations as needed to guide streetscape design and the necessary coordination with the private sector. It is estimated that five meetings may be needed during the final design phase.

Task 1 - Project Management	
LHB / SRF	<ul style="list-style-type: none"> • Prepare and distribute project correspondence • Monitor Project Budget • Manage Quality Control and Assurance procedures • Communication with City staff and public • Facilitate monthly Project Management Team meetings (PMT) (10 meetings assumed) • Facilitate Streetscape Advisory Committee Meetings (SAC) (5 meetings assumed through 60% design)
City	<ul style="list-style-type: none"> • Participate in PMT and SAC meetings • Timely project coordination
Deliverables	<ul style="list-style-type: none"> • Project Correspondence • Meeting Agendas & Minutes

Task 2 - Public Involvement and Coordination Meetings



Preliminary design work completed to date involved five public meetings and numerous stakeholder work sessions which provided insight to the community's values and priorities for Superior Street. This work also provided a firm foundation for final design and forward momentum toward project implementation. The comprehensive, productive public and stakeholder involvement during the Preliminary Design Phase should be continued in the Final Design Phase to ensure a transparent process that fully informs and continues to engage interested parties. Ongoing public and stakeholder involvement is needed to

further refine design decisions, to provide insight as to final construction plan intent, and to inform others regarding construction phasing and their required participation.

A three tiered approach is suggested that fully engages the public, businesses and building owners. Formal meetings, small group presentations and regular updates of the project web site will occur commensurate with key points in the final design process (30%, 60% and 90%) plans. Meetings and presentations will promote one to one discussions between City staff, the consultant team and the private sector to address details of the project and their implementation.



Task 2 - Public Involvement and Coordination Meetings	
LHB / SRF	<p>Public Involvement/Information Meetings - Open house meetings at the 30%, 60% and 90% stages of design plans where project updates are provided as well as more intimate one to one conversations regarding specific project issues or individual property concerns.</p> <p>Businesses/Building Owners - A formal information meeting will be held during the 30% design task to provide an update on the project; provide notification to building owners with respect to their responsibilities regarding permanent and temporary building utility connections and vault work; discuss construction and access needs; and solicit information and input. Additionally, ongoing coordination and communication with businesses including attendance at select GDC meetings to provide updates at key points in the design process</p> <ul style="list-style-type: none"> • Project updates on the City Superior Street project web site • Project updates on the GDC web site and news letters • One to one meetings, as needed to resolve location specific issues.
City	<ul style="list-style-type: none"> • Assistance in coordinating meeting space for meetings • Coordination of project web site updates
Deliverables	<ul style="list-style-type: none"> • Three Public meetings in open house format at 30%, 60% and 90% plan levels • Business/Building Owner meeting at the 30% plan level • Communication updates to project web site hosted by the city • One to one meetings, as needed to resolve location specific issues.

Task 3 - Initial Site Visits and Consultations

Upon a notice to proceed from the City, LHB/SRF will facilitate a design kickoff meeting with City staff. Our approach to project meetings with City staff is to develop a working agenda with clearly identified goals and tangible outcomes in a work session environment that enables informed and efficient decision making. Our goals at the kickoff meeting will be to review project scope and design objectives; establish communication protocols; confirm project schedule and milestones; and gather input. For each project meeting, we will prepare meeting agendas and minutes to memorialize discussion, key decisions and action items for follow-up.

Task 3 - Initial Site Visits and Consultations	
LHB / SRF	<ul style="list-style-type: none"> • Participate in coordination meeting with City staff to review project scope. • Review and establish project design criteria.
City	<ul style="list-style-type: none"> • Ensure key city staff members participate in design meeting and site visit as desired. • Route and review meeting minutes and provide feedback on project design elements.
Deliverables	<ul style="list-style-type: none"> • Meeting minutes/summaries and design criteria summary.

Task 4 - Reconnaissance and Field Surveys

LHB provided the topographic and utility survey for the project which included detailed surface survey; structure and catch basin reports; utility coordination with private utilities to verify mapping; vault diagrams; review of existing mapping and historic plans; and field reviews with mapping in hand to verify accuracy. Therefore, significant field survey is not anticipated as part of the final design. However, the proposed retaining walls for the project were not part of the

original design survey and their status in the design was not determined until relatively late in the preliminary design process. Field survey for the retaining walls at Gateway Tower and the old Muffler Clinic site is required. In addition, on a project of this size and complexity, we believe it will be necessary to send our survey crew out from time to time to gather additional survey on an as needed basis to resolve design issues. We have included a nominal amount of time in the budget for this task and our proximity to the project area means we can do this work efficiently and cost effectively as it is required.

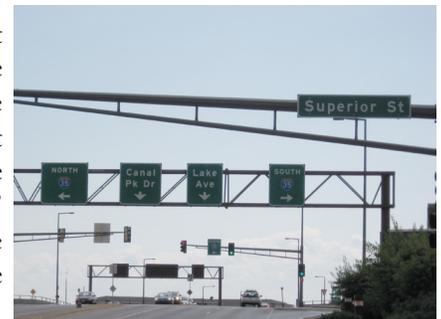
Task 4 - Reconnaissance and Field Surveys	
LHB / SRF	<ul style="list-style-type: none"> • Provide supplementary topographic field survey as required to resolve specific issues or concerns. • Perform detailed topographic survey and mapping of the project retaining walls.
City	<ul style="list-style-type: none"> • Provide any existing reports, surveys and record drawings and access to City archive information.
Deliverables	<ul style="list-style-type: none"> • Updated project base map.

Task 5 - Traffic Signal Design

In our preliminary design work we analyzed each of the project intersections with regard to intersection traffic control. Signal warrants analysis suggested that only one intersection, Superior Street at Lake Avenue, meets traffic signal volume warrants. However, we documented a number of other important considerations that led to a recommendation that each of the ten currently signalized intersections along the corridor should remain signalized. Those considerations included sight line constraints, grades, pedestrian safety considerations, and continuity of traffic control that currently works reasonably well.

SIGNAL JUSTIFICATION REPORTS

We expect the signal justification report (SJR) task will entail taking the analysis that was previously done and packaging it in such a way that the recommendations will be accepted by the MnDOT Office of State Aid. The traffic counts that were used in the previous analysis were performed in October 2013. State Aid typically requires that counts for signal warrants analysis in an SJR be less than two years old. While we have budgeted to gather all new count data, we propose to do three 24-hour “sampling” counts to compare current traffic volume counts to those gathered in 2013. If the counts are close, we propose to request a variance from State Aid to allow us to use the 2013 count data. If they agree, the City will save money on data collection.



TEMPORARY SIGNAL DESIGN



We anticipate that a construction temporary signal will only be needed at one intersection along the corridor: Superior Street at Lake Avenue. We will design that temporary signal and incorporate it into the contract documents. As construction staging concepts are advanced, and signed detour routes are established, we will evaluate the detour routes to determine if diverted traffic might harm the operational integrity at certain intersections. It is conceivable that temporary intersection traffic control changes might be necessary at certain locations, possibly including additional temporary signals. If this appears to be the case, we will negotiate a scope adjustment to incorporate that

design work into the project.

PERMANENT SIGNAL DESIGN

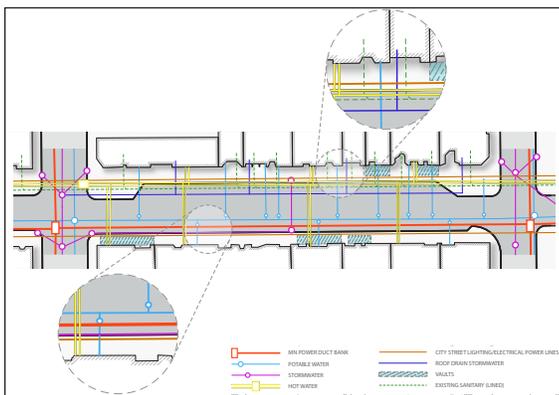
We plan to design ten permanent traffic signals along Superior Street between 6th Avenue West and 3rd Avenue East. These are the same ten intersections that are currently signalized. Signals will be designed to City of Duluth standards. We will evaluate subsurface conditions to determine whether the presence of areaways or bedrock will necessitate special pole foundation designs. We will also incorporate transit considerations such as the possibility of transit signal priority into the design as appropriate. The design will include fiber-optic interconnect the length of the corridor. We will engage the City in discussion about other options for use of the fiber, to make sure it fits in with the City’s vision for traffic management, security, etc. We will also discuss a preferred method for backhauling data to the City’s traffic management center. The permanent traffic signal designs will incorporate Audible Pedestrian Signals (APS) and countdown pedestrian indications to accommodate all pedestrians. APS design will be completed to current MnDOT standards. The design plans will call for salvage and reinstall of the recently installed APS equipment at the 2nd Avenue West and 3rd Avenue West intersections.

Updated coordinated signal timing plans were recently implemented on Superior Street from 6th Avenue West to 3rd Avenue East as part of a project to install Transit Signal Priority (TSP). Following completion of signal design and prior to construction, we will review the newly implemented coordinated timing plans. The review will include a check to verify that the existing timing plans are compatible with the proposed signal designs. The review will also look at whether the existing splits, offsets and TSP settings are appropriate for the recent changes that have occurred along the corridor that impact traffic flow, including the new Maurices headquarters building between 4th and 5th Avenues West.

Upon completion of the timing plan review, we will provide a summary of the recommended optimized timing plan changes to the City for review. After the traffic signals have been made operational by the contractor (using the existing timing plans) SRF will then implement the recommended changes in the field. As part of the implementation SRF will observe the operations of the traffic signals along the corridor over a two-day period to fine-tune their performance. Upon completion of fine-tuning SRF will provide the City with updated Synchro networks containing the optimized timing plan settings.

Task 5 - Traffic Signal Design (SRF)	
LHB / SRF	<ul style="list-style-type: none"> • Conduct traffic volume counts to supplement data received from City. Initially, perform representative counts and engage State Aid to see if count data gathered in October 2013 is still valid and usable. • Perform updated signal warrants analysis. Write signal justification reports (SJR's). • Design ten permanent traffic signals and interconnect, at Superior Street intersections from 6th Avenue West through 3rd Avenue East. • Design construction temporary signal for Superior Street/Lake Avenue intersection, as well as for any other intersections that need temporary signals to accommodate diverting traffic resulting from staged construction. • Develop, implement and fine-tune coordinated signal timing plans (value-added task).
City	<ul style="list-style-type: none"> • Furnish recent (within the past two years) intersection turning movement or hourly approach volume count data, if available. • Furnish most recent three years of crash data. • Furnish mapping of in place downtown communications infrastructure. • Existing signal timing settings
Deliverables	<ul style="list-style-type: none"> • SJRs – one for each of ten signalized intersections. • Permanent traffic signal and interconnect plans and Division SS special provisions. • Construction temporary signal plans and special provisions. • Coordinated signal timing plans and Synchro/SimTraffic files

Task 6 - 30% Design



The 30% design task for Superior Street is focused on building on the street layout work developed during the previous phase in preparation for detailed final design.

The major street elements to be finalized in the 30% design phase include the consideration of vertical profile on Superior Street and the Avenues including detailed consideration of vehicle turning movements, signal placement, and ADA / accessibility issues. The 30% design effort will also include preliminary utility layouts for the new water main and lateral services and storm sewer systems (roadway and building roof drains). Preliminary utility layout work will focus on identifying conflict points and constraints with regard to new utilities and utilities to remain. This

work will also include consideration of the layouts for the new District hot water system and private utilities including Minnesota Power's new primary power duct bank system (by others). This phase will also include final utility coordination and meetings with private utility owners to confirm the integrity of the project mapping and to initiate any utility adjustments or relocations that may be required. The 30% design task will include the final approval of the project Response Action Plan / Construction Contingency Plan (RAP/CCP).



Consideration of the street vertical profile and utilities will establish the extent of the work at each intersection and begin to inform more detailed consideration of construction staging and sequencing requirements including the placement of valves and shutoffs for the water main to allow the work to progress block by block. As part of the project coordination, LHB will work and meet with the District State Aid Engineer (DSAE) to ensure MnDOT is informed of the direction and issues on the project. We recommend that the DSAE be invited to be a member of the PMT. Upon completion of the preliminary design layout,

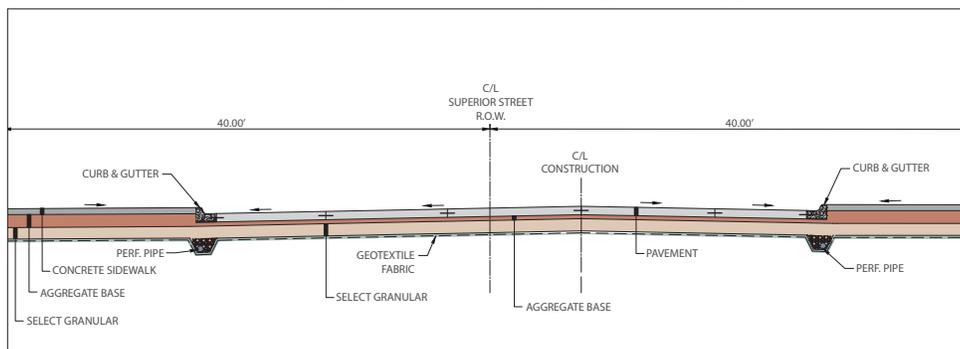
LHB will complete, prepare and submit a State Aid Request for Variance submittal package including a summary of the variances required; assessment of economic/social impacts; anticipated impact of the proposed variance(s) on the safety of the motoring public; future compatibility; and mitigation of the variance condition. We will also prepare the resolution language required for the variance submittal. LHB will attend the variance committee meeting with the City's representative. LHB has prepared variance packages and the variance committee hearings for a variety of County and City projects presented and we have been successful in all cases in obtaining the needed variance.

Task 6 - 30% Design	
LHB / SRF	<ul style="list-style-type: none"> Finalize geometric street layout including vertical and horizontal geometrics and project limits-complete design to the level that initial geometrics and project limits are established and key impacts, conflicts, constraints and issues can be identified. Facilitate and Lead Utility Coordination process and meetings. Prepare State Aid variance submittal and attend variance committee meeting.
City	<ul style="list-style-type: none"> Review and provide comment on geometric and utility layouts. Attend variance committee meeting and submit resolution for Council approval. Attend utility coordination meeting(s) with private utility owners.
Deliverables	<ul style="list-style-type: none"> Preliminary geometric and utility layout exhibit. Utility coordination documentation (agendas, minutes, mapping/data, notices). Variance submittal package.

Task 7 - Final Design

Final design for Superior Street will take the project through the intermediate (60%) and final (90% and 100%) plan levels including final special provisions and cost estimates to provide the complete bidding package for the project.

Street - Upon adoption of the final street geometrics by the PMT, the street design effort shifts to detailed consideration of the various elements that make up the final roadway design. Final typical sections are developed and formalized. Our proposal



is based on the recommendations of the design summary report for a concrete pavement section design along the corridor. Roadway construction plan and profile sheets will be prepared. Concrete paving layout plans are anticipated including detailed intersection layouts with critical elevations and cross slopes defined.

Detailed ADA layouts are anticipated at the intersections and cross walk locations. Final design will also include the careful consideration of the sidewalk interface with building openings and doorway thresholds along Superior Street. The planned intersection bump outs increase the width of the walk and varying lateral curb locations will require a nuanced evaluation of road and sidewalk cross slopes to ensure positive drainage is maintained and compliant cross slopes and running slopes are maintained. Final placement of the DTA transit shelters including new foundations will be determined.



Water - The City intends to replace the existing water mains and laterals on the project as detailed in the summary report with the intent to use HDPE pipe for the new system. As part of the final design, the traditional benefits of HDPE pipe including long fused lengths of pipe being lowered into the trench for quick installation need to be evaluated based on the presence of existing and proposed utilities and service laterals. There are certainly some blocks, especially on the west end of the corridor, with low conflict potential that are good candidates for HDPE pipe and construction methods. Intersections and blocks east have a higher potential for conflicts due to the presence of new and existing utilities. The ability to route longer lengths of fused

pipe around obstructions and conflicts is limited and the need to fuse in the trench or use electrofusion couplings lowers production, raises costs, and adds long term system risk particularly with electrofused connections. Ductile Iron pipe may be considered if HDPE is impractical. The issues involved are complex and require knowledge of the specific project application; past experience on similar projects; and extensive knowledge of the current state and emerging technology in the industry with regard to fittings and construction methods. As part of our team, we have included Clay Tappan from CDM Smith, a national expert in HDPE pipe and water main construction with urban water main project experience similar to Superior Street, as utility specialist to assist with the system design and layout and provide technical review and input during the final design.

Service laterals to the buildings are to provide both the domestic and fire service needs of the building. The final design process will require coordination with individual building owners to solicit information regarding the existing service and future service needs and provide notice to inform building owners regarding their responsibilities with respect to the final connection.

Temporary Water - The temporary water plan for the project represents a major element of the construction staging plan and project cost. The plan needs to identify a feasible, practical, cost effective solution to providing the building service needs. A detailed temporary water plan will be provided that incorporates project phasing requirements and addresses building connections; roadway and pedestrian crossings; special situations; cross connections; and isolation valving to allow for block by block progress, disinfection and testing. The plan will include the performance requirements of the system to allow latitude for contractor modifications based on their work plan and phasing scheme.

Stormwater - The City has indicated it intends to replace the existing storm sewer system and add inlets at mid-blocks to improve drainage. The stormwater design will also require consideration of the building roof drain and drainage systems that, for the most part, currently drain to a separate lateral main system. A detailed hydrologic and hydraulic analysis will be prepared and the State Aid requirements for gutter spread and pipe size will be strictly followed to ensure effective storm sewer cost participation. A final hydraulic report and State Aid Drainage submittal will be completed.

Vaults - Our proposal assumes LHB will assess the visible portion of the existing vaults to determine their condition and evaluate the need for repairs or work related to the proposed street design (approximately 50 vaults). Following assessment and determination of those needs, we can assist with final design of the vaults as additional service which we would estimate to be about 16 hours of engineering and 20 hours of technician time (approx. \$4,000/vault) to address standard repairs.



Walls - LHB will perform the initial condition assessment, research, and structural analysis of the in-place retaining walls at Gateway Towers and the old Muffler Clinic site and determine the needed scope for rehabilitation or replacement. Our proposal includes design and construction documents for repair/replacement of the walls.

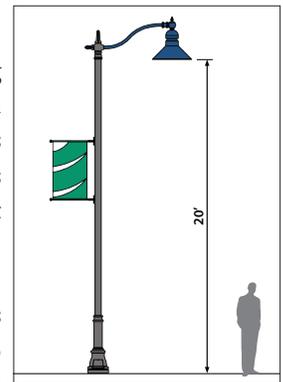


Environmental - For the final design, the environmental work will include ongoing evaluation of the project environmental soil management needs with respect to the reconstruction plans. Environmental engineering design drawings and technical specifications will be prepared to ensure that all remediation work is conducted in accordance with agency requirements and as outlined in the project RAP/CCP and that all disposal manifests and recordkeeping required during the construction phase are identified. Ongoing communication with the MPCA VIC program will be provided to ensure agency approvals through the start of construction.

Task 7 - Final Design	
LHB / SRF	<ul style="list-style-type: none"> • Complete and submit 60% design plans – complete design to the level that all significant design decisions have been addressed to properly construct the project. • Complete and submit 90%, 95%, and 100% plan - complete design to biddable level including quantity takeoffs, construction details, and statement of estimated quantities. • Prepare 60% and 90% special provisions • Prepare bid-ready special provisions
City	<ul style="list-style-type: none"> • Review and provide feedback on 60% design plans as desired. • Review and provide feedback on 90% plans.
Deliverables	<ul style="list-style-type: none"> • 60% and 90% Design Submittals. • 95% Design Submittal to City for State Aid review. • 100% Corrected Final Plan Submittal to City for Bidding. • Final bid-ready special provisions

Task 8 - Lighting / Electrical Design

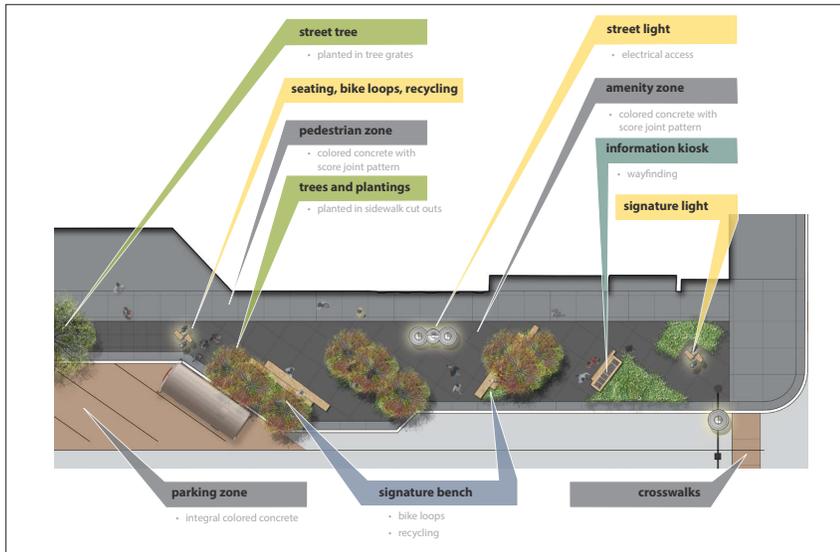
The LHB/SRF preliminary design plans provided clear guidance as to the required lighting performance along the corridor consistent with national guidelines. A tentative recommendation for the pole, base, luminaire and an LED light source was arrived upon consistent with the city's equipment vocabulary. Input from the public emphasized a dark sky compliant fixture with cutoffs that will respect second building level uses. An initial lighting layout was recommended with light pole location and spacing to meet the desired light levels and to complement the streetscape layout.



Final design for lighting will verify these initial recommendations by providing a lighting analysis with computer calculations of light levels and illumination uniformity. This task will be used to refine light pole layout and to clarify the exact cutoffs needed to guide light levels to the intended street and sidewalk surfaces. Several light and electrical design decisions will occur in final design, in particular those related to electrical access, power distribution, and amenity lighting complementary to the streetscape design. Tree Tivoli lighting, festival power distribution, light pole holiday decorations, banners and other amenities are yet to be determined. These optional elements should be verified early in the process consistent with available funding and operation needs. We also anticipate that temporary street lighting will be required during construction. Our proposal assumes the temporary lighting system will be provided by the contractor based on a performance specification we will prepare.

Task 8 - Lighting / Electrical Design	
LHB / SRF	<ul style="list-style-type: none"> • Lighting removal plans – prepare plans for the removal and/or salvaging of lighting equipment coordinated with construction staging. • Verify the need and establish requirements for temporary lighting during construction. • Lighting analysis – prepare lighting analysis report to meet lighting levels according to AASHTO guidelines, MnDOT, City of Duluth, and dark sky design requirements. Lighting to cover street, sidewalk and specialty signature areas. • Electrical Accessory and communications systems – prepare electrical plans for accessory items such as parking payment kiosk, power pedestals, power/lighting/heat for transit stops, aesthetic and accent lighting, fiber communications/conduit, specialty plaza area amenities, etc. • 60% design – Prepare draft lighting plans based on lighting analysis and project requirements including lighting placement, unit selection, utility coordination and cost estimate. All wiring to be routed through NMC, share handholes at intersections with signals. • 90% design – final plans for lighting based on client team comments and project adjustments and requirements, specifications and updated cost estimate.
City	<ul style="list-style-type: none"> • Existing electrical/lighting plans and as-built drawings. • Participate in coordination meetings to discuss lighting options and electrical accessory items. • Utility contacts and billing options including LED lighting rebates.
Deliverables	<ul style="list-style-type: none"> • Lighting analysis report. • 60% and 90% plans. • 100% final PS&E for removal and installation of lighting and electrical.

Task 9 - Streetscape



Each aspect of the Superior Street project is important to project success but the streetscape design may be the most visible and the most subjective for critique. Recommendations arrived upon by LHB/SRF during the preliminary design serve as guideposts for the final plans. Streetscape layout plans illustrate functional spaces within sidewalk area including the pedestrian zone, the amenity zone and bump outs. Each zone will be reinforced by distinctive concrete surface color and treatment with the exact specification to be determined in the final design. Street furniture and other amenities will conform to a vocabulary of complementary materials, colors and forms. Landscaped areas have been preliminarily defined, however, species

selection and seasonal plantings are yet to be verified. Existing transit shelters are to be relocated. Any transit shelter improvements or updates should be completed during the project. Public art was a priority arrived upon by the public process. The involvement of artists, the location of elements and the type of art is yet to be determined. Gateway and plaza concepts presented during the preliminary process will be detailed through design refinement. Decision making during the final design phase with review, input, and approval from the Project Management Team and Streetscape Advisory Committee, will focus upon subject items; color, texture, furniture choice and other aesthetic elements. Capital costs, operational needs and maintenance requirements will inform these decisions as well.

Task 9 - Streetscape	
LHB / SRF	<ul style="list-style-type: none"> • Work to be completed addresses the streetscape portion of the project (surface elements associated with the sidewalk area from back of curb to right of way line) and surface reconstruction of the plaza (southeast corner of Lake Avenue/Superior Street) • 30% drawings will update the preliminary design in conformance with curb line changes and revisions for element locations • 60% drawings will verify dimensions, element choices, materials and landscaping, provide revised estimate of construction costs • Final (90%) drawings will finalize dimensions, element locations, provide details and specifications • Provide final estimate of construction costs • Coordinate public art elements and installation requirements • Prepare updated visualization of the streetscape and/or plaza design • (optional) Revise and/or reconstruct the plaza water feature • (optional) Make revisions to transit shelters other than their relocation
City	<ul style="list-style-type: none"> • Coordination meetings to discuss streetscape and plaza design options • Verify final choices for streetscape materials, furniture elements and landscaping
Deliverables	<ul style="list-style-type: none"> • 30% layout plan • 60% and 90% • 100% final PS&E

Task 10 - Construction Sequencing, Staging, and Traffic Control

Construction staging and phasing is an integral element of the project with the dual goals of allowing contractor access to the work while minimizing the disruption to adjacent building tenants, businesses, and retail operations. Vehicle and pedestrian traffic will need to be routed through and around the downtown area and construction work zones to allow for the work to occur while concurrently providing as much access as possible to the local businesses in the work zone. Construction staging and traffic control issues and options to be studied include the adjustment of current traffic movements such as the conversion of Avenues or 1st Street to two-way traffic; parking and loading/delivery vehicle access during construction;



and pedestrian access to storefronts during construction. The final traffic control plan must allow for the dynamic and changing needs of construction while also providing a predictable and manageable approach that reassures businesses and can be easily communicated to the public.

Our approach to this task is to first perform the necessary research, field review, and preparation to identify the individual access capabilities and needs for each block including business storefront access; availability of skyway and alley-way access; delivery vehicle requirements; reliance on on-street parking and street level access needs. We will combine the research with layout options/ graphics in preparation for a workshop which we propose to be held with the City. To ensure the integration of all project disciplines / requirements we propose for this work to be led by Joe Litman with Brad Scott (Roadway Engineer) and Scott Poska (Traffic Engineer) serving as task assistance. The workshop will be utilized to review and refine options and their feasibility in terms of constructability, speed of construction, effect on finished product quality, staging, traffic disruptions and cost with an end goal of determining the preferred staging / phasing option for the project on a block-by-block basis. The Workshop will serve to efficiently bring all parties together and share the necessary information to allow for further engagement with the building/business owners and the public moving forward. The final staging / phasing plan will be incorporated in the final design.

Prepare Transportation Management Plan

Primarily because of the need to place temporary traffic control devices on TH 35W right-of-way related to the closure of Lake Avenue, but also because of the number of stakeholders and the high-profile nature of this project, we will prepare a Transportation Management Plan (TMP). The TMP will be based on the proposed construction staging concept determined with agency and stakeholder input, and will be in accordance with the “Minnesota Work Zone Safety and Mobility Policy”. It is assumed that the TMP will be a “Basic TMP” without traffic analysis or modeling.

Task 10 - Construction Sequencing and Staging and Traffic Control	
LHB / SRF	<ul style="list-style-type: none"> • Advance research, field review • Preparation and analysis of layouts, graphics and cost estimating for staging workshop • Facilitate staging workshop • Coordination with City, Building Owners/Tenants, GDC, Chamber of Commerce • Develop permanent signing and pavement marking plans and special provisions. • Develop work zone traffic control plans, including detour signing plans and temporary pedestrian access where appropriate, consistent with agreed-upon construction staging. • Evaluate temporary intersection traffic control needs to accommodate detours. • Transportation Management Plan
City	<ul style="list-style-type: none"> • Participate in staging workshop • Review and provide comment on staging/phasing alternatives • Review and provide comments on draft final signing and pavement marking plans and special provisions. • Review and provide comments on draft final construction staging and work zone traffic control plans.
Deliverables	<ul style="list-style-type: none"> • Staging/Sequencing layouts and graphics • Staging estimates • Workshop materials/meeting documentation • Documented final staging/phasing approach

Task 11 - District Hot Water System

As part of the project, Duluth Energy Systems intends to upgrade its existing steam system to a hot water distribution system including mains and lateral connections and system appurtenances such as vents, drains, thermal expansion compensation, leak detection, and communication conduits. LHB has worked with Duluth Energy on the development of schematic design plans for the portion of the project between 7th Ave West and 5th Ave West and we are familiar with their standard specifications and project needs as they relate to Superior Street.



We will work with Duluth Energy to provide system layout and provide coordination with the other utility and reconstruction work on the project. Duluth Energy will be responsible for engineering design of their system including final main and lateral sizing requirements. The final layout, details and project bid items with funding splits will be incorporated into the project documents. Our proposal assumes coordination with building owners and service lateral requirements will be provided by Duluth Energy.

Task 11 - District Hot Water System	
LHB	<ul style="list-style-type: none"> • Gather design information and verify existing system constraints including service lateral connections, potential utility conflicts, and project connection points to existing system. • Complete Preliminary System Layout -- set system horizontal and vertical geometry. • Incorporate Final System Layout in the project plans during Final Design including quantities, construction details, and Hot Water special provisions. • Cost estimating
City/ Duluth Energy Systems	<ul style="list-style-type: none"> • Provide feedback and comment on design. • System Design and Stress Analysis (Duluth Energy) • Coordination with building owners and service lateral requirements.
Deliverables	<ul style="list-style-type: none"> • Preliminary Schematic plans including horizontal/vertical geometry; construction details; cross sections; and quantities. • Final hot water plans incorporated into project plans. • Special Provisions and Construction Cost Estimate

Task 12 - Estimates of Construction Cost

We will prepare and update construction cost estimates throughout the design process that mirror the project SEQ and appropriately split costs between project funding sources. We rely on our past experience with similar projects, discussions with contractors, and historical cost data to provide reliable estimates of Contractor bid costs. Updated estimates will be provided with 30%, 60%, and 90% design submittals.

Task 12 - Cost Estimating	
LHB / SRF	<ul style="list-style-type: none"> • Provide ongoing estimating as plans progress • Prepare 30%, 60% and 90% Estimates • Prepare 100% engineer's estimates (final detailed estimate)
City	<ul style="list-style-type: none"> • Provide recent historical cost data and bid tabs • Review and provide feedback on estimates as desired
Deliverables	<ul style="list-style-type: none"> • 30%, 60%, 90%, and 100% Estimates

Task 13 - Bidding Assistance

LHB will assist the City in the assembly of the bid package and remain available to answer any questions that may arise during bidding. If required, we will provide any formal clarifications or addenda that cannot be readily resolved by direct reference to the plans and special provisions. We will attend the pre-bid conference and assist the City in the evaluation of bids.

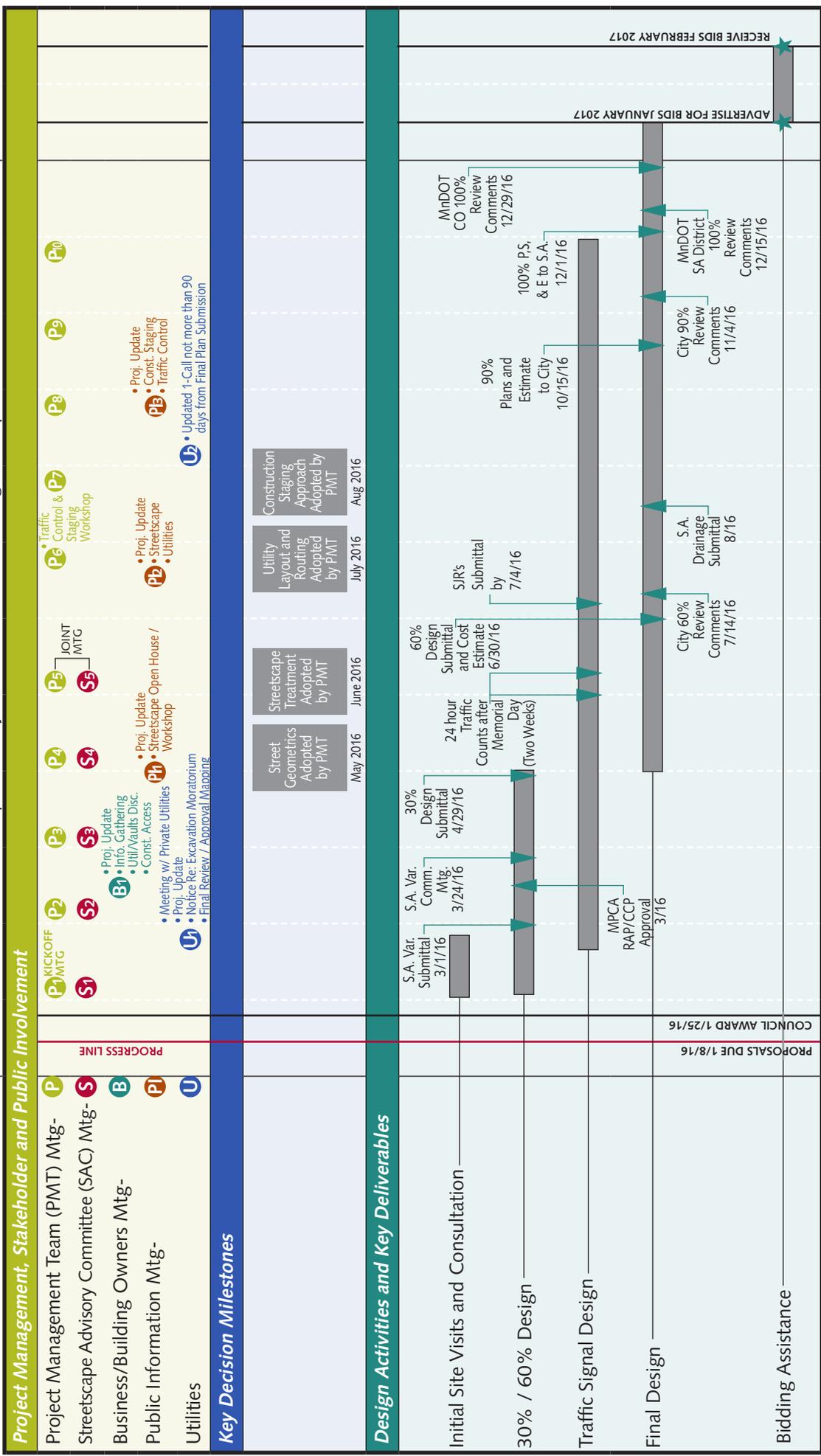
Task 13 - Bidding Assistance	
LHB / SRF	<ul style="list-style-type: none"> • Answer City and Contractor questions during bidding • Attend the pre-bid conference
City	<ul style="list-style-type: none"> • Advertising, Bidding and Letting Management
Deliverables	<ul style="list-style-type: none"> • Clarifications or Addenda, as required

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Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb

Project Schedule



Superior Street Reconstruction Final Design Phase

The schedule outlined in the City's RFP is fast paced. LHB/SRF are committed to meeting the City's timeline and offer the following schedule as a guideline. Critical factors to the success of the project are the timely communication and resolution of design issues as well as consensus decision making at key milestones to ensure the forward progress of the project.



Background & Experience

Project Type

Planning and Design
Duluth, MN

Project Team

Joe Litman, LHB
Brad Scott, LHB
Barry Warner, SRF
Heidi Bringman, LHB

Project Type

Hot Water Design
Duluth, MN

Project Team

Brad Scott, LHB
Dan Shaw, LHB

Project Type

Electrical Utility Duct Bank
Duluth, MN

Project Team

Brad Scott, LHB (PE/PM)

Project Type

Road and Utility Construction
Duluth, MN

Project Team

Joe Litman, LHB, Project
Principal
Brad Scott, LHB, Project
Manager
Nathan Bruno, LHB

Project Type

Bus Shelter Design
Duluth, MN

Project Team

Joe Litman, LHB, Civil/
Structures
Heidi Bringman, LHB, LA



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Superior Street Reconstruction - Planning and Preliminary Design Phase

SRF and LHB provided planning and preliminary engineering services for the reconstruction of Superior Street. The preliminary design and public involvement phase included six public meetings and extensive one-on-one coordination with downtown stakeholders including the GDC, private utility owners, and individual business owners and retail interests. The project also included preliminary work on the engineering and technical components of the design and culminated with a comprehensive design summary document.

Duluth Energy Hot Water Design - Superior Street

LHB is currently assisting Duluth Energy with the schematic design for its new hot water distribution system on Superior Street between 7th Avenue West and 5th Avenue West. The project design includes plan and profile layouts of the proposed distribution main; service laterals; thermal expansion; communications conduit and other appurtenances. Project deliverables include full schematic layout with construction details, draft specifications, cost estimate and summary technical memorandum.

Minnesota Power Downtown Reliability Project

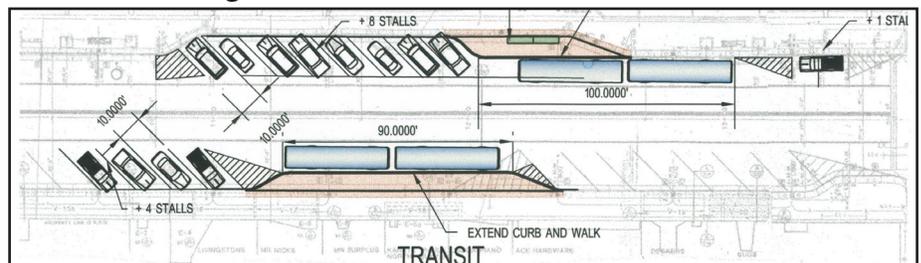
For the past three years, LHB has provided design and construction administration for the multi-phased construction of new primary electrical duct bank on Michigan Street between Minnesota Power's substation at Garfield Avenue and 3rd Avenue West. The project includes approximately 1-mile of concrete utility duct bank including street and surface restoration as well as concurrent removal / replacement of City utility infrastructure.

LHB Street Improvement and Utility Projects



LHB has assisted the City of Duluth with roadway and utility improvement projects for over 25 years. Our recent utility projects include 2.65 miles of 2nd Street in Downtown Duluth; reconstruction and utility work on Oxford Street, Livingston Avenue and Glenwood Street (1 mile); and several projects related to the June 2012 flood repairs including the relocation of Seven Bridges Road; reconstruction of Hawthorne Road, Vermilion Road and St. Marie St; and other projects. Our firm's resume extends prior to the start of the City's SIP program and our work experience includes all phases of planning, design and construction administration experience related to City road and utility work.

DTA Shelter Design



LHB worked with the DTA to design 11 transit shelters. The project included schematic design and construction documents for sidewalk and curb modifications at approximately 11 locations on Superior Street.

Background & Experience

Project Type

Parking Structure
Duluth, MN

Project Team

Joe Litman, LHB, Civil/
Structures
Brad Scott, LHB, Traffic Control
Nick Erpelding, SRF, Traffic
Signals

Project Type

Street, Streetscape, and Utilities
Minneapolis, MN

Project Team

Barry Warner, SRF, Project
Manager/Urban Design Lead
Tim Wold, SRF, Landscape
Architecture/Streetscape
Nick Erpelding, SRF, Signals

Project Type

Street and Streetscape
Reconstruction

Project Team

Barry Warner, SRF, Urban
Design

Project Type

Streetscape and Infrastructure
Reconstruction
Brainerd, MN

Project Team

Barry Warner, SRF, Project
Manager/Urban Design Lead
Tim Wold, SRF, Landscape
Architecture/Streetscape



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DTA Multimodal Facility



In association with Mortenson Construction on this design/build project, LHB is the designer for this \$28.9 million transit center, parking structure, skywalk, and office facility. The DTA project will be paid for with \$16 million in federal funding, \$6 million in state funding, and \$6.9 million in local and private investment funding. The project required extensive multi-stage traffic control plans for the construction of the Northwest Passage over I-35 to facilitate the work while minimizing disruption to the downtown and area businesses.

Lake Street Reconstruction and Streetscaping



The project included full reconstruction of Lake Street in Downtown Minneapolis. The project also included the replacement of 27 traffic signals, and multiple stages of temporary construction signals. Coordinated signal timing plans for 35 signals, with cross-coordination on several crossing arterials, were also part of the design. Innovative design features were incorporated to provide shorter pedestrian crossings, encourage transit use, provide room for sidewalk cafes and commercial uses, maximize the success of street tree plantings, and improve the quality of water runoff through the use of infiltration swales and appropriate plantings. These innovations create a positive image and distinct identity for the corridor.

Broadway Avenue Mega Project



Completed in 2012 for the City of Forest Lake, this award-winning project boasts improvements to pedestrian and bicycle facilities and a new overpass at County Road 83 and I-35. In addition, a backage road north of Broadway Avenue provides alternative access to local businesses. SRF worked closely with County and City staff on a thorough public outreach campaign. The process included monthly meetings with a local Transportation Design Review Committee, group meetings with adjacent business/property owners, and public open houses. In an effort to keep local business/property owners well informed of project related activities and progress, group e-mails were sent weekly during design and construction to provide up-to date project information.

Brainerd Downtown Streetscape and Infrastructure Reconstruction



In collaboration with a local engineering firm, SRF provided conceptual and final streetscape design services for a project encompassing twelve block faces within downtown Brainerd. The final design includes gateway elements to reinforce entry points and nodes within the downtown commercial core, a complete range of street furnishings, parking lot screening through ornamental metal fencing and landscape plantings, enhanced sidewalk pavement, and opportunities for public art.

Project Team



Joseph D. Litman, PE - Project Principal / Const. Staging and Traffic Control

With 27 years of experience, Joe serves as the Manager of LHB's Transportation and Structures Group, specializing in the management and design of civil and structural projects. His responsibilities include all phases of project coordination and design with emphasis on team leadership, organization and quality delivery. Joe's design experience encompasses all facets of civil engineering projects, including environmental and federal reporting, documentation, and design of state and county highways, municipal roadways, water, sanitary and storm sewer systems, bridges, and industrial structures.

Brad P. Scott, PE - Project Manager / Quality Control / Street & Utilities

Brad is the leader of LHB's transportation group with over 18 years of experience in street and utility design, construction management, and project management. Brad's street design experience is based on a variety of roadway project types including municipals, County, Road, and State Highways and he is an expert in State Aid design requirements. His design and construction experience includes water, sanitary, sewer, storm sewer, electrical duct bank, and gas for general civil, municipal, and site design projects throughout Minnesota. Brad's project management abilities excel at design team leadership for complex projects, construction planning, project scheduling, quality control and construction administration.

Jon Siiter, PE - Retaining Walls/Vaults

Jon has been responsible for the design, construction and investigation/inspection of bridges and structures for over 20 years. His experience includes new design, rehabilitation design and inspection of structures utilizing steel, reinforced concrete, prestressed concrete, post tensioned concrete, stone masonry, brick masonry and timber.

Dan Shaw, PE - Hot Water Design

Dan is the leader of LHB's Site Design Group and has over 20 years of experience in a wide variety of civil infrastructure projects. Dan is experienced in all phases of planning, design, and construction administration for site and municipal projects. At LHB, Dan has been responsible or is currently designing District Heating projects involving steam or hot water design for clients such as the University of Wisconsin- Superior, University of Minnesota- Duluth, and Duluth Energy Systems.

Heidi Bringman, PLA, LEED AP BD+C, CDT, CCCA, WDCP - Public Involvement

Heidi has thirteen years of experience as a Landscape Architect with LHB. Areas of her specialization include master planning, site development, site planning, drainage, native planting designs, and graphic illustrations. Heidi is well versed in the City of Duluth's standards and guidelines including the Unified Development Code (UDC). She is recognized for her ability to communicate complex design issues with a practical, outcome focused approach that educates and informs consensus decision making in the public engagement process.



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Project Team



Nathan Bruno, PE - Stormwater Engineer

Nathan has ten years of design experience in civil engineering specializing in water resource and stormwater engineering. He has extensive experience designing: storm water treatments ponds, storm sewer and other conveyance systems, bridge hydraulic, sanitary sewers, water mains, site grading and drainage plans, and SWPPP's for both public and private clients. Nathan has a working knowledge of MnDOT State Aid design requirements including the preparation of SA drainage reports and funding splits.

Barry Warner, FASLA, AICP - Public Involvement / Streetscape Design

Barry is a widely respected landscape architect with nearly 40 years of diverse and award-winning project experience. He is known for strong project management, innovative design, inclusive public process facilitation and responsive communication with agencies and citizens. Barry is a Fellow in the American Society of Landscape Architects and is actively involved in other professional organizations.

Timothy Wold, ASLA - Streetscape Design

Tim has 17 years experience in landscape architecture and urban design. He has a wide range of project experience that includes urban streetscapes, municipal park planning and design, trail system planning, site design, and natural resource-based state and regional parks. His project responsibilities typically include site inventories and analyses, programming, conceptual design, master plan development, design development, preparation of construction documents and cost estimates, and in-construction services.

Nick Erpelding, PE, PTOE - Traffic Signals

Nick has 13 years of experience in traffic and transportation engineering with a focus on traffic signal design, operations and Transit Signal Priority (TSP). His work includes signal retiming for hundreds of intersections; implementation, optimization, and benefit analysis of transit signal priority (TSP) deployments; field fine-tuning of signal timing and TSP operations; traffic signal and ITS design; VISSIM modeling of transit operations using ASC/3 software-in-the-loop technology; and development of an extensive array of signal timing-related design and operations analysis tools.

Steve McHenry, PE - Street Lighting / Electrical

Steve is an experienced electrical engineer with 30 years of design and management expertise in numerous electrical engineering aspects including power distribution, street and streetscape, lighting design, LED applications, solar power systems, and control systems. Steve also has experience designing commercial, industrial and institutional power, lighting, fire/safety, HVAC control, and surveillance systems. In addition, he has conducted energy efficiency studies and developed improvement plans for energy utilization.

Curt Sohn, PSP, PMP - Construction Staging / Traffic Control

With nearly 20 years of experience in planning, cost estimates, scheduling, and project management activities, Curt works with clients to meet project goals in accordance with priorities, time limitations, and funding conditions. He has extensive experience with cost estimating software and document control systems. Curt has developed cost estimates from the schematic estimate to the engineer's estimates for multiple transportation and public works projects, ranging up to nearly \$1 billion in value.



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Project Team



References

**James Grube, PE - Director,
Transportation & County Engineer
Hennepin County Department of
Public Works**

1600 Prairie Drive
Medina, MN 55340 | 612.596.0307
james.grube@co.hennepin.mn.us

**Roberta Dwyer-Project Manager
MnDOT**

1123 Mesaba Avenue
Duluth, MN 55811
218.725.2781
roberta.dwyer@dot.state.mn.us

**Wayne Sandberg, PE
County Engineer
Washington County**

11660 Meyron Road North
Stillwater, MN 55082
651.430.4339
wayne.sandberg@co.washington.mn.us



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Scott Poska, PE, PTOE - Traffic Control

Scott has 12 years of experience in traffic and transportation engineering. He is responsible for the design and preparation of plans, special provisions, and cost estimates for a wide range of traffic control projects including highway and urban street settings. Scott's expertise includes work zone traffic control plans; detour plans; interim striping and pavement marking plans; temporary signals; and traffic management plans (TMPs).

Eric Dott - Environmental

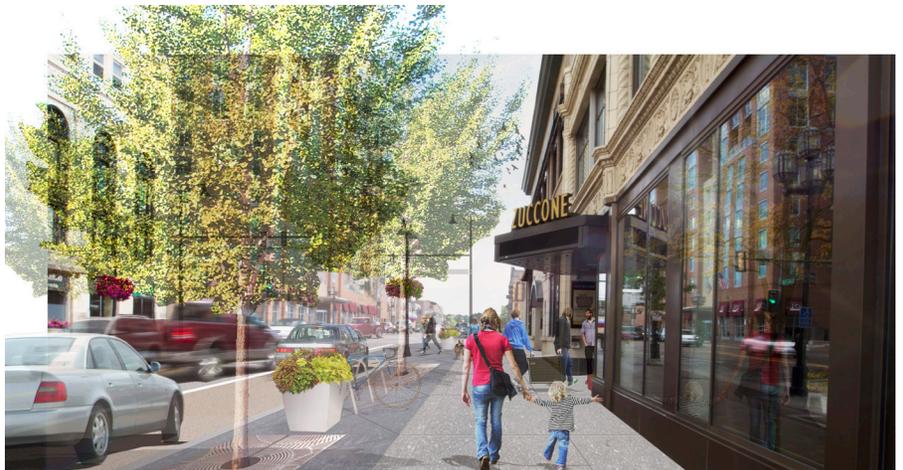
Eric Dott has more than 25 years of experience as a hydrogeologist, project manager, and environmental professional. Mr. Dott is a senior brownfields specialist in Barr's Duluth office working on soil remediation sites at industrial facilities, property developments and municipal properties. He will serve as Barr's principal-in-charge for environmental support services to this project.

Lynette Carney - Environmental

Lynette Carney has 20 years of environmental consulting experience working as a professional geologist and project manager on petroleum and hazardous material release sites for public, private and industrial clients. Ms. Carney is experienced in preparing environmental specifications for contaminated media management at municipal infrastructure project sites. She will serve as Barr's project manager and will work with the design team to incorporate the proposed response actions into the project plans and specifications.

Clay Tappan, PE, BCEE - Utility Specialist

Clay has 29 years of experience in the design of water and water distribution facilities. Clay is a nationally recognized pipeline expert, having designed hundreds of miles of pressure and gravity pipelines during his career under various subsurface conditions. Clay has extensive experience in the planning design and construction of many miles of HDPE watermains and forcemains. Clay assisted CDM Smith's St. Paul office in design of 20,000 linear feet of 18-inch diameter HDPE temporary conveyance piping for the MCES Hopkins System Improvements project, and 18,000 linear feet of 30-inch HDPE that was directionally drilled for the MCES L-78 Lift Station in White Bear Lake, Minnesota.



**WORK PLAN &
SUMMARY OF HOURS BY TASK**



Work Task	Description	Project Principal	Project Manager	Project Engineer	Project Engineer	Project Engineer	Project Engineer	Civil Designer	Landscape Architect	Lead Technician	Civil Technician	Admin Asst.	Project Manager	Landscape Architect	Landscape Architect	Sr. Lighting Engineer	Lighting Engineer	Lighting Technician	Roadway Engineer	Sr Traffic Engineer	TC Engineer	Traffic Engineer	Traffic Technician	Data Collection	Cost Estimating	Cost Estimating	Phasing/ Sequencing	Admin Asst.
		Joe Litman	Brad Scott	Nathan Bruno	Megan Goplin	Dan Shaw	Jon Suter		Heidi Bringman					Barry Warner	Tim Wold	Bret Wieseler	Steve McHenry	Brent Jaspersen	Tom Richardson	Steve Prusak	Nick Erpelding	Scott Poska		Bri Betts	Tom Sachi	Roger Hendricksor	Thomas Gorman	Curt Sohn
Task 1 - Project Management		84	230	8	8	8	8	0	18	0	0	27	150	60	0	8	0	0	0	0	0	0	0	0	0	0	0	0
1.01	Work Coordination (project tracking, billing, etc.)	20	60									4	30															
1.02	Correspondence	20	40									8	30															
1.03	Consultant Team Coordination	20	40										30															
1.04	PMT Meetings (10 Mtgs)	20	80	8	8	8	8		8			10	40	40		8												
1.05	SAC Meetings (5 Mtgs)	4	10						10			5	20	20														
Task 2 - Public Involvement and Coordination Meetings		31	60	0	40	0	0	6	40	0	0	6	52	24	0	0	0	0	0	8	0	0	0	0	0	0	0	0
2.01	Public / Coordination Meetings (Includes Meeting Preparation)																											
2.02	Public Information Meetings (3 mtgs)	9	18						18			6	24	24						8								
2.03	Business/Building Owner Coordination Meetings (1 mtgs)	3	6						6				8															
2.04	One-on-One Business Owner Meetings & Coordination	16	30		40				16				12															
2.05	Utility Meeting	3	6					6					8															
Task 3 - Initial Site Visits and Consultation		14	20	0	0	0	0	0	0	0	0	4	16	16	0	0	0	0	0	0	23	0	0	0	0	0	0	0
3.01	Internal Kick-off Meeting	8	8										8	8							8							
3.02	City Kick-Off Meeting and Information Gathering	6	6										8	8							15							
3.03	Meeting Minutes & Design Criteria Summary		6									4																
Task 4 - Reconnaissance and Field Surveys		2	28	0	0	0	33	52	0	69	88	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.01	Gopher One Call for Supplementary Survey							2				1																
4.02	Vault Inventories (50 Vaults +/-) & Building Access Coordination		20					25	50		25	12																
4.03	Retaining Walls Survey, Mapping & Structural Assessment	2	2					8			12	24																
4.04	Supplementary Survey & Mapping		6								32	64																
Task 5 - Traffic Signal Design		6	24	0	0	0	16	0	0	16	0	0	0	0	0	0	0	0	0	0	440	0	540	630	120	0	0	20
5.01	Alternatives Operations Analysis		4																		10	20						
5.02	Pedestrian Needs In-Field Assessment		4																		20							
5.03	Temporary Signal System Operations Analysis (Staging)		4																		10	40						
5.04	Signal Justification Reports		4																		50	170	50	120				
5.05	Temporary Signal Design and Specifications		4																		25	30	40					
5.06	Permanent Signal Design and Specifications (80 Sheets)		4																		305	280	540					20
5.07	Design Meetings																				20							
5.08	Traffic Signal Foundations	6					16			16																		
Task 6 - 30% Design		24	274	164	88	4	20	230	0	260	0	0	8	0	0	0	0	0	0	260	65	80	62	0	0	0	0	0
6.01	Set Horizontal and Vertical Alignment Geometrics		80					80		40			8								200							
6.02	Preliminary Cross Sections	8	33							120																		
6.03	Retaining Wall Analysis for Rehabilitation/Replacement	4					20			20																		
6.04	Preliminary Water Layout		65					90		40																		
6.05	Temporary Water Layout (CDM Smith)	4	24																									
6.06	Preliminary Stormwater Layout		20	40																								
6.07	Hydrology			60																								
6.08	Preliminary Hydraulics			60				30																				
6.09	Preliminary Signal Layout, Phasing Analysis																				55	80						
6.10	State Aid Variance Submittal & Meeting	4	32					24		16																		
6.11	Util Design Mtgs (1-2 Meetings Ea per Water / Storm / HW)	4	16	4		4		6																				
6.12	ADA Design and Field Review		4		88					24											60							22
6.13	Existing Signing Inventory and Layout																				10	40						

