

Project Management Plan

*Riverdale Drive Extension
SP #####
City Improvement Project 12-22
City of Ramsey*



*A standard document
to assure delivery of quality projects that are timely and cost-effective.*

Prepared by:

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<i>Date</i>	<i>October 31, 2012</i>

Approved by:

<i>Name</i>	
<i>Date</i>	

Project Description

The Riverdale Drive Extension project is programmed into the City's CIP for construction in 2013. The project limits are Riverdale Drive (partially new alignment) from Armstrong Blvd to Traprock Street. The existing segment (approx. 1900' in length) of Riverdale Drive, from Armstrong Blvd to the east cul-de-sac, is in poor condition and will be reconstructed. The new segment, from the eastern cul-de-sac to Traprock Street is approximately 2,500' in length and will include re-aligning the Traprock access to Highway 10. Work in Mn/DOT ROW will be necessary to construct the new turn lanes, acceleration lanes, and remove the center median/crossing at the existing Traprock Street access location. The new access (approximately 100' west of existing) will be a ¾ access, with the movement from Riverdale Drive to westbound Highway 10 prohibited. The Alpaca Street access to Highway 10 will also be eliminated.

Sanitary sewer and watermain will also be extended with the project. The sanitary sewer will be extended from the intersection of Armstrong Blvd and Riverdale Drive to just east of the location of the current cul-de-sac (onto Hope Fellowship property). Due to the depth, it is likely that a lift station will be required in the future to serve the surrounding undeveloped area. The likely location of the sanitary sewer lift station will be determined with this project for determining the location and alignment for the termination of the gravity sanitary sewer constructed with this project. The watermain will be extended from the Armstrong Blvd/Riverdale Drive intersection along the entire alignment of this project, and possibly extended to make a connection with existing watermain at Ramsey Blvd.

This project will impact the existing stormwater pond adjacent to Highway 10. Stormwater ponding and mitigation for this project will be necessary.

Scope of Work

For the purposes of this report, we have broken the work into several tasks. The following items detail the work tasks required.

Project Initiation and Coordination

Data Compilation – (Background Information)

The Ramsey Engineering Department will compile and review all known available documents of existing features and planned projects in the vicinity of the proposed work. Soil borings and a geotechnical report will be completed by Northern Technologies, Inc.

Gopher State One Call

The Ramsey Engineering Department will contact Gopher State One Call prior to initial field operations to obtain locations of existing utilities. If possible, the locations of the existing facilities will be surveyed. At a minimum, the locations will be drafted into the base map using maps provided.

Survey Coordination and Controls

The Ramsey Engineering Department will coordinate and conduct all ground survey efforts. A full topographic survey will be completed and control on the project will

be set. The survey team will survey the existing alignment of Riverdale Drive, the proposed alignment, a segment of Traprock, and the Mn/DOT ROW in the area.

* Additional traffic control will be necessary for survey efforts on and adjacent to Highway 10.

Wetland Investigation

The Ramsey Engineering Department will complete a wetland investigation to determine if any existing or historical wetlands will be impacted. If necessary, a sub-consultant will be used to delineate wetland boundaries and complete the necessary WCA paperwork. Wetland impacts are not anticipated with this project.

Field Review

The design engineer will perform a field review of base plan information. Verify location of existing features, note legends on all warning, regulatory and route marker signs. Verify that plans provide sufficient information regarding existing wetland, drainage and sewer systems. Take photographs and/or video of existing residential driveways, street intersections, and the surrounding environment as necessary.

Preliminary Design (30% Plans)

Determine Horizontal Alignment

The horizontal alignment of the new roadway section will be determined. The design team will identify the design speed of the roadway, and prepare the geometric design accordingly.

Traffic Analysis

The Ramsey Engineering Department will complete a traffic analysis of the area. As part of the investigation, the design team will confer with the Planning Department to determine existing and proposed land uses in the adjacent and surrounding areas. After the existing and proposed land uses are determined, the design team can forecast the traffic in the years 2013 and 2033.

Determine Roadway Width / Cross Section

After the traffic analysis has been completed, the roadway width and cross section can be determined to ensure that the road has the capacity for the level of traffic anticipated. The need for turn lanes and lengths based on anticipated turning movements will be identified.

Vertical Road Alignment (1st or 2nd run)

The vertical road alignment will be determined with vertical curve lengths for the design speed. The earthwork will be calculated to determine the earthwork balance. A significant amount of fill will likely be necessary to construct the road across the current location of the stormwater pond. A retaining wall option should also be studied to determine if the addition of a retaining wall will result in less costs and less stormwater mitigation.

Stormwater Ponding / Mitigation

Stormwater facilities will need to be designed to mitigate the impacts of the improvements as well as mitigate the filled portion of the County pond. Preliminary stormwater calculations will be prepared to determine the locations for the necessary ponding and mitigation areas.

Sanitary Sewer Alignment and Profile

The preliminary sanitary sewer design will be completed. The design staff will verify that the size of the sanitary sewer is adequate to serve the areas intended based on the existing and proposed land uses. The location of the future lift station to be constructed by others will be sited.

Watermain Extension Alignment and Profile

The preliminary watermain design will be completed. Design staff will evaluate the feasibility for providing a connection to the existing watermain on Ramsey Blvd. The additional easement needs will be evaluated and the capacity of the water system will be verified for the existing and proposed land uses.

Trail(s), Alignment and Width

The design team will determine if the incorporation of pedestrian and bicycle facilities will be incorporated into the design.

Landscaping Plan

The design team will determine the proposed landscape features. Consideration will be given to boulevard trees, sod vs. seed, mulch type, seed mix, irrigation, etc.

Easements

Additional Right of Way and easements will be necessary. The engineering staff will prepare the easement exhibits and descriptions necessary. The City Attorney will prepare the easement documents and assist with recording the easements. It will be necessary to use a consultant to set the property corners / iron markers for the new right-of-way.

Preliminary Cost Estimate

Prepare a preliminary estimate of construction costs.

Intermediate Design (50% to 75% plans)

Removal Plan

Features that will be removed will be indicated on the removal plans. Tree clearing limits will be defined.

Pavement Design

A pavement design using the Granular Equivalence Method will be completed once soil testing is complete. Determination of 20yr ESALs will be necessary.

Vertical Design (3rd and final runs)

The vertical profile will be finalized and will be determined to meet the design speed, limit grading costs, provide the best adjacent property access and the best ride.

Cross Sections

The typical street section will be ran in order to cut cross sections at 50 foot intervals. The typical street section will label the location of roadway centerline, pavement thicknesses and types of material. The cross sections will show the impacts to adjustments to the vertical profile in regards to right-of-way and easement impacts, touch-down locations, drainage impacts, utility impacts, etc.

Detailed Design for Sanitary Sewer and Watermain

The detailed design for the sanitary sewer and watermain will be completed. All invert elevations, pipe sizes and pipe slopes will be labeled for the sanitary sewer. The profiles will be created for both the sanitary sewer and watermain. The pipe sizes, hydrant locations, DIP fittings, and hydrant elevations will be determined.

Detailed Design for Stormwater Related Improvements

The hydrologic model will be refined. A drainage area map will be created and the size of the drainage basins will be identified. The curve numbers and time of concentration for the contributing areas will be estimated. The ponding areas will be identified and will be modeled, and the 2-YR, 10-YR, and 100-YR elevations will be determined.

The storm sewer will be sized by identifying the sub-watershed areas and a storm sewer drainage map will be created. Storm sewer will be sized for the 10-year return frequency. The need for stubbing storm sewer to adjacent property will be analyzed. The inlet spread will be determined and additional catchbasins will be added if necessary.

The limits of the construction will be analyzed to determine all areas where runoff will enter and leave the site to ensure that no drainage issues are created. A drainage pattern exhibit will be prepared.

Detailed Design for Trail/Sidewalk Facilities

The detailed design for trail and sidewalk facilities, if any, will be completed.

Construction Details

Provide details of all standard features and other required special details to fully communicate the construction requirements.

Landscaping Plan

The landscaping plan will be prepared, which will inform the Contractor of the method of restoration expected, plantings, trees, etc.

Detailed Design for Highway 10 Improvements

The detailed design for the improvements within the Highway 10 right-of-way will be prepared. The turn lane lengths, geometry, pavement sections, etc. will all be designed per Mn/DOT standards.

Traffic Control Plan

Traffic control and staging plans will be prepared. Detour routes/local access will be analyzed.

Permanent Signage and Pavement Marking Plans

Signage and striping plans will be prepared in accordance with MN MUTCD standards.

Utility Coordination

Impacts to utility owners will be determined and the required utility meeting will be held with the affected utility owners. At or prior to this meeting, utility owner's will be notified if they have to relocate their facilities as part of this project. Any utilities that interfere with the work will be relocated, and written notice will be issued.

Value Engineering

The design team will go through a value engineering process in which design alternatives that will add value to the project will be considered. For example, in the area of the existing stormwater pond, a retaining wall option will be studied and costs estimated to determine if the addition of a retaining wall will add value to the project and reduce overall project costs.

Stakeholder Review

Draft plans will be distributed to stakeholders for early review. All major issues identified by stakeholder review will be promptly addressed such that critical path can be maintained.

Final Construction Plans and Specifications

Final Construction Plan Revision

The final set of construction plans will be prepared. All comments received will be incorporated if possible. If not possible, or if impractical, written responses to the reviewer will be prepared to explain.

Easements Verified

The easement limits that have been obtained will be verified against the final design. The touch-down points / construction limits will be reviewed and all areas that extend past the permanent easements will be flagged. Easement documents for construction easements will be prepared if necessary.

Specifications / Project Manual

The technical specifications will be prepared. The contract conditions and front end documents will be identified. All necessary attachments will be incorporated into the Appendix of the Project Manual.

Permits

All applicable permits will be prepared. Permits will include MDH permit for watermain extension, MPCA permit for sanitary sewer extension, MPCA/NPDES permit for land disturbing activities, MN/DOT ROW permit. The state 303d list for impaired waters will be reviewed and the necessary Storm Water Pollution Prevention Plan (SWPPP) will be prepared. A LRRWMO watershed permit will be prepared.

Quality Control (QC) Review

The City of Ramsey will either adopt a QC/QA policy or utilize HAI's current QC/QA policies and procedures. Perform an in depth review of the quality and accuracy of the documents to ensure that all aspects of the information to be presented meets industry and City standards. Quality Control Review must be completed by a Professional Engineer that is skilled in the area of design and was not involved in the preparation of the documents. Since the entire engineering department will be involved in the preparation of the plans and specifications, this task will require the use of a consultant.

Construction Cost Estimate

Prepare an Engineer's Estimate of Probable Construction Costs.

Bidding

Engineering Dept. will obtain proposals from contractors, analyzing said proposals and preparing the contract for execution. Ramsey Eng. Dept. will also field questions from the contractor during the bidding process.

Construction Phase

Construction Observation

It is anticipated that the City of Ramsey will provide construction observation in-house.

Construction Administration

It is anticipated that the City of Ramsey will provide the construction administration and project engineering in-house. The engineer will issue additional instruction to the contractor as may be necessary to interpret the contract documents and will illustrate any changes required to do the work. Staff will review shop drawings, contractor submittals, materials and other data for compliance with the contract documents. Ramsey Engineering Dept. will keep a record of quantities and process pay estimates.

Construction Staking

It is anticipated that the City of Ramsey will provide the construction staking for this project in-house.

Materials and Field Testing

It is anticipated that NTI will be utilized to perform the materials and field testing.

As-Builts/Record Drawings

The design and inspection staff will prepare record drawings which indicate as-built elevations, slopes, locations, etc.

Budget Summary

The preliminary construction costs for this project have been previously estimated, as follows:

Estimated Costs – Roadway.....	\$2,168,000
Estimated Costs – Sanitary Sewer.....	\$507,000
Estimated Costs – Watermain.....	\$273,000
TOTAL PROJECT COST	\$2,948,000

For this project, the following outside costs (included in the total project costs above) are expected to be incurred in addition to the construction costs:

Legal Services for Easement and ROW Acquisition.....	\$5,000 (est)
Setting of monuments for ROW acquisition.....	\$4,000 (est)
Wetland Determination.....	\$1,000 (est)
Soil Borings and Geotechnical Report.....	\$4,000 (est)
QA/QC review of Plans and Specifications.....	\$16,000 (est)
Materials and Field Testing.....	\$30,000 (est)
Permits and Advertising.....	\$3,000 (est)
Total Outside Costs	\$63,000 (est)

Although it is possible that the City will be granted the right-of-way and easements in exchange for providing the road, sanitary sewer extension, and watermain extension, the preliminary budget includes right-of-way acquisition costs (included in the total project cost), as follows:

Right-of-way Acquisition.....	\$150,000
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Funding of Project

The City or Ramsey has received a co-operative agreement grant from the State of MN for a maximum amount of \$702,000. The remainder of the project will be funded using City funds. A preliminary funding breakdown is listed below:

Co-operative Agreement Grant.....	\$702,000
MSA Fund.....	\$1,466,000
Sewer Fund.....	\$507,000

Water Fund.....\$273,000

Totals \$2,948,000

Schedule

The Project Manager will be responsible for developing, monitoring and maintaining the project schedule. It will be necessary to identify specific milestones that can affect the critical path of this project. The milestones for this project are:

<i>Milestone</i>	<i>Projected Date of Completion</i>	<i>Significance</i>
30% set of Plans	December 15, 2012	Allows Easement/ROW Needs to be Determined
Easements / ROW Needs finalized	January 1, 2013	Delivered to current and future Property Owners
50% set of Plans for MNDOT initial review	January 31, 2013	MNDOT Concurrence
75% set of plans	February 22, 2013	Stakeholder Review
Final Plans and Specifications	March 29, 2013	Mn/DOT Approval before bidding
Mn/DOT Approval	April 19, 2013	Allows Bidding
Council Approves Plan and Authorizes Ad for Bid	April 23, 2013	Allows Advertising to Begin
Ad for Bid	April 29 thru May 20	Statutory Requirement
Bid Opening	June 3, 2013	Critical for award of bid
Award Bid	June 11, 2013	June 30 th deadline for Grant Funding
Begin/End Construction	July 2013/Oct 2013	Active Construction Period

Deliverables

Deliverables for this project consist of:

- Construction Plans
- Project Manual
- Stormwater Report
- Easement Exhibits

Project Organization

This section describes the organization supporting this project. The Ramsey Engineering Department is responsible for all design and will self-perform all work during the design phase and will subcontract with a geotechnical firm and construction survey firm as appropriate during construction of the project.

External Interfaces

- The Mn/DOT Representative is:

Phillip Bergem, PE
Minnesota Department of Transportation
Metro State Aid – Cooperative Agreements Engineer
1500 West Co Rd B2
Roseville, MN 55113
651-234-7776
Email: Phillip.Bergem@state.mn.us

All Mn/DOT submittals will be directed to Phil Bergem, and he will distribute within Mn/DOT as necessary. All transmittals from the City of Ramsey to Mr. Bergem shall include the statement “*we understand that all submittals are routed through your office and you will distribute within Mn/DOT for department reviews as necessary*”.

Internal Structure

The Ramsey Engineering Department Project team is identified as follows:

Ramsey Interim Engineer/Project Manager: Shane Nelson

Lead Design Engineer / Cadd Technician: Leonard Linton

CADD Drafter: TBD

Survey Team / Design Technicians: Mike McDowall
Construction Observers: Aaron Madsen

The Project Manager will be responsible for coordinating, scheduling, budgeting, reviewing, and document control of the project. The Project Manager will also provide general direction as to format of and content of specific deliverables. The Lead Design Engineer will be responsible for leading the detailed design effort including design, plan production, plan review, and maintain design documents and calculations. The Lead CADD Technician is responsible for leading plan production according to CADD Standards and coordinating work between engineers and other technicians. A system of defining and tracking the project tasks has been established to match Scope of Work. This Work Breakdown Structure to be used for Riverdale Drive can be found in Appendix A.

Stakeholder / Agency / Department Review

It will be necessary to distribute work products for stakeholder and agency review periodically through the process to ensure that a last minute design change is not required late in the process which may affect the critical path of this project. The following work products shall be submitted for review as specified below:

Submitted to	Description
Hope Fellowship	Easement Exhibits, 30% Plans
PSD	Easement Exhibits, 30% Plans
Phillip Bergem, Mn/DOT	50% Plans
Mark Riverblood, Parks Supervisor	75% Plans
John Nelson, Utilities Supervisor	75% Plans
Grant Reimer, Public Works Superintendent	75% Plans
Hope Fellowship (if still own)	75% Plans
PSD	75% Plans
Anoka County	75% Plans with Stormwater Report
Phillip Bergem, Mn/DOT	100% Plans and Specifications
Mark Riverblood, Parks Supervisor	100% Plans and Specifications
John Nelson, Utilities Supervisor	100% Plans and Specifications
Grant Reimer, Public Works Superintendent	100% Plans and Specifications
Hope Fellowship (if still own)	100% Plans
PSD	100% Plans
LRRWMO Watershed District	100% Plans with Stormwater Report
Anoka County	100% Plans with Stormwater Report

A transmittal shall accompany all requests for stakeholder and agency review, including internal review. Transmittals shall specifically request the review of the documents and written responses by a specific date (including internal reviews). The Lead Design Engineer and the Project Manager will review all comments and incorporate if possible, and if not incorporated will provide a written explanation/justification. All comments and responses shall be kept in the project file.

Appendix A

CITY OF RAMSEY

PROJECT: RIVERDALE DRIVE EXTENSION, CITY PROJECT 12-22

ESTIMATED PERSON HOURS

TASK NO.	WORK TASK DESCRIPTION	CITY ENGINEER / PROJECT MANAGER	LEAD DESIGN ENGINEER	CAD DRAFTER	ENGINEERING TECH IV	ENGINEERING TECH II	ADMINISTRATIVE	TOTALS - CITY STAFF	CONSULTANT COST
1.0	Project Initiation and Coordination; Thru Nov 19								
1.1	Data Compilation	16	24					40	\$4,000.00
1.2	Gopher State One Call				2			2	
1.3	Survey Control			2	6	6		14	
1.4	Survey Topographic			24	60	60		144	
1.5	Wetland Investigation							0	\$1,000.00
1.6	Field Review	2	6		1	1		10	
	SUBTOTAL - TASK 1	18	30	26	69	67	0	210	\$5,000.00
2.0	Preliminary Design (30% Plans) Nov. 19 - Dec 15; 4 weeks								
2.1	Determine Horizontal Alignment	4	12	12				28	
2.2	Traffic Analysis	6	48					54	
2.3	Determine Roadway Width/Cross Section	2	8	2				12	
2.4	Vertical Alignment (1st or 2nd run)	2	8	8				18	
2.5	Stormwater Ponding / Mitigation	16	32	2				50	
2.6	Sanitary Sewer Alignment and Profile	2	8	8				18	
2.7	Watermain Alignment and Profile	2	4	4				10	
2.8	Trails Alignment and Width	2	4	4				10	
2.9	Landscaping Plan	4	2	2					
2.10	Easements	4	12	12				28	\$9,000.00
2.11	Preliminary Cost Estimate	24	4		6	6		40	
	SUBTOTAL - TASK 2	68	142	54	6	6	0	268	\$9,000.00

CITY OF RAMSEY

PROJECT: RIVERDALE DRIVE EXTENSION, CITY PROJECT 12-22

ESTIMATED PERSON HOURS

TASK NO.	WORK TASK DESCRIPTION	CITY ENGINEER / PROJECT MANAGER	LEAD DESIGN ENGINEER	CAD DRAFTER	ENGINEERING TECH IV	ENGINEERING TECH II	ADMINISTRATIVE	TOTALS - CITY STAFF	CONSULTANT COST
3.0	Intermediate Design; Dec 17 - Feb 22; 10 weeks								
3.1	Removal Plan	4	16	16	4	4		44	
3.2	Pavement Design / ESAL Forecasting	4	24					28	
3.3	Vertical Design (3rd and final runs)	2	12	8				22	
3.4	Cross Sections	4	16	16				36	
3.5	Detailed Sanitary Sewer Design	2	16	20	8	8		54	
3.6	Detailed Watermain Design	2	16	20	8	8		54	
3.7	Stormwater Hydrologic Model	8	40	4				52	
3.8	Stormwater Storm Sewer and Inlet Spread Calcs	2	12	2				16	
3.9	Trail and Sidewalk Design	1	4	4				9	
3.10	Construction Details	2	12	12	4	4		34	
3.11	Detailed Design for Highway 10 Improvements	60	120	120				300	
3.12	Traffic Control Plan	4	20	4	4	4		36	
3.13	Signage and Striping Plan	4	16	8	4	4		36	
3.14	Utility Coordination	2	8					10	
3.15	Stakeholder Review	2	4					6	
	SUBTOTAL - TASK 3	103	336	234	32	32	0	737	\$0.00

CITY OF RAMSEY

PROJECT: RIVERDALE DRIVE EXTENSION, CITY PROJECT 12-22

ESTIMATED PERSON HOURS

TASK NO.	WORK TASK DESCRIPTION	CITY ENGINEER / PROJECT MANAGER	LEAD DESIGN ENGINEER	CAD DRAFTER	ENGINEERING TECH IV	ENGINEERING TECH II	ADMINISTRATIVE	TOTALS - CITY STAFF	CONSULTANT COST
4.0	Final Construction Plans and Specifications; Feb 25 - June 3; 14 weeks								
4.1	Revisions to Construction Plans	48	96	140	4	4		292	
4.2	Specifications / Project Manual	16	60		8	8	40	132	
4.3	Permits	6	24		4	4	4	42	\$1,500.00
4.4	QC Plans and Specifications	4	8						\$16,000.00
4.5	Construction Cost Estimate	16	16		16	16		64	
4.6	Bidding	4	16		8			28	\$1,500.00
	SUBTOTAL - TASK 4	94	220	140	40	32	44	558	\$19,000.00
5.0	Construction Phase; July 2013 - Oct 15, 2013; 16 weeks								
5.1	Construction Staking	2	24	80	240	240		586	
5.2	Construction Observation				640	200		840	
5.3	Construction Administration	160	80					240	
5.4	Materials Testing								\$30,000.00
	SUBTOTAL - TASK 5	162	104	80	880	440	0	1666	\$30,000.00

CITY OF RAMSEY

PROJECT: RIVERDALE DRIVE EXTENSION, CITY PROJECT 12-22

ESTIMATED PERSON HOURS

TASK NO.	WORK TASK DESCRIPTION	CITY ENGINEER / PROJECT MANAGER	LEAD DESIGN ENGINEER	CAD DRAFTER	ENGINEERING TECH IV	ENGINEERING TECH II	ADMINISTRATIVE	TOTALS - CITY STAFF	CONSULTANT COST
6.0	Post-Construction Phase; Oct 15 - Nov 25; 6 weeks								
6.1	Construction As-Built Surveys		2		16	16		34	
6.2	Draft and Prepare "As-Built" Plans	4	16	16	8			44	
6.3	Project Close Out	4	16		8	4	2	34	
	SUBTOTAL - TASK 6	8	34	16	32	20	2	112	
	SUBTOTAL OF TASKS 1-6	453	866	550	1059	597	46	3551	\$63,000.00
	TOTAL ESTIMATED PERSON HOURS	453	866	550	1059	597	46	3551	
	AVERAGE HOURLY BILLING RATES	\$110.00	\$105.00	\$85.00	\$88.00	\$85.00	\$60.00		
	ESTIMATED VALUE	\$49,830.00	\$90,930.00	\$46,750.00	\$93,192.00	\$50,745.00	\$2,760.00	\$334,207.00	\$63,000.00
	TOTAL ESTIMATED COST								<u>\$397,207.00</u>

TOTAL ESTIMATED PROJECT COST	\$2,948,000.00
TOTAL ESTIMATED ROW COSTS	\$150,000.00
TOTAL ESTIMATED ENGINEERING & ADMINISTRATIVE COSTS	\$397,207.00
TOTAL ESTIMATED CONSTRUCTION COSTS	\$2,400,793.00
ENGINEERING & ADMINISTRATIVE (% OF CONSTRUCTION)	16.54%