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   B. Water Main Relocation Costs and Betterments
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9.04.09 Subsurface Utility Engineering (SUE)
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9.05 MUNICIPAL UTILITY COORDINATION WORK
REFERENCES

A. Utility Coordination Manual
   Development Services Division

B. Guidance Document 10087
   Distribution of Cost
   Municipally Owned Utilities

C. Guidance Document 10086
   Relocation of Municipally Owned Utilities

D. Standard Plan R-1-Series
   Drainage Structures

E. Standard Plan R-18-Series
   Cover Q

F. Standard Plan R-83-Series
   Utility Trenches

9.02

MUNICIPAL AND PRIVATE
UTILITY RELOCATION
POLICIES AND PROCEDURES

9.02.01 (revised 11-26-2012)

Municipal Utility Relocation Policy

A. General Information Applying to All Municipal Utilities

The Highway Steering Committee at its meeting on March 26, 1992 approved the Design Division’s Municipal Utility Relocation Policy. A municipal utility is a utility or service owned, operated, and maintained by a recognized governmental entity within its corporation or jurisdictional boundaries. Such utilities or services are water, waste water, storm water, and public lighting. The facilities operated by these municipal utilities are water mains, sanitary sewers, storm sewers, power lines, poles, and street lights.

Public Act 51 of 1951 requires MDOT to bear the cost of removal and replacement of street lights impacted by a trunkline highway project. As a general rule, municipalities provide street lighting as a public service through agreements with electric utilities. MDOT typically coordinates street light reimbursement with the electric utility provider rather than the municipality.

The current policy allows an evaluation of the existing utility’s condition and age to estimate its potential effects on the life cycle of the proposed pavement.

Relocations of facilities, not including betterments, at project costs (defined in Guidance Document 10087) only apply when the municipal utility is operating within the corporate boundaries of the municipality. Costs of relocations outside the corporate boundaries shall be the responsibility of the municipality with the following exceptions:

1. If it is conclusively determined that the utility serves only customers within its corporate boundaries the costs shall be at project cost.

2. Storm sewer costs will be shared, based on the contributing flow (Q) of each agency. (State and Local) These costs are shared based on each run of the storm sewer. Refer to MDOT Drainage Manual Section 2.5.4 and Guidance Document 10087.

3. If the utility is not located on public right-of-way but on other easements or right-of-way secured by that body or utility.
MICHIGAN DESIGN MANUAL
ROAD DESIGN

9.02.01A (continued)

Municipal Utility Relocation Policy

The Department will relocate sanitary sewers, storm sewers, power lines, power poles, street lights, communications lines, etc. at project costs, not including betterments, only when they are in direct conflict with the proposed construction.

B. Water Main Relocation Costs and Betterments

Water mains are considered a potential threat to the roadway. The current policy requires an evaluation of the existing water main's condition and age to estimate its potential effects on the life cycle of the proposed pavement.

Projects constructed using Federal Funds, will include a water main relocation study according to the process as described in Section 9.02.01C.

Distribution of Costs - If it is determined that water main relocation will be included with the project, the municipality shall be required to participate in 50% of the non-federal costs of the installed price of the main and appurtenances. An agreement must be initiated with the municipality through the Governmental Coordination Engineer. Water main betterments shall be in accordance with Guidance Document 10087. If it is determined that water main relocation will not be included with the project, water main relocations which are required due to direct construction conflicts, i.e., physically being displaced, significantly reducing the cover over the mains or placing structures atop of the main, will be performed at the project costs.

9.02.01 (continued)

C. Water Main Relocation Studies

Relocation Studies at Department costs will consist of input and recommendations from the TSC Utility Coordinators and from the Design Division's Municipal Utilities Unit. Studies will be conducted as follows, except that such a study will not be performed for projects constructed without the use of Federal Funds:

1. No Conflicts - A water main located under an existing pavement that is not going to be removed (such as a resurfacing project).

2. Conflicts - A water main located;
   a) under and existing pavement which will be removed.
   b) outside the existing pavement but under a proposed pavement widening.
   c) under new roadways.

A water main relocation study will be performed.

All documentation pertaining to the Water Main Relocation study must be saved in ProjectWise in the Utilities, Drainage and Roadside subfolder.
MICHIGAN DESIGN MANUAL
ROAD DESIGN

9.02.01C (continued)

Municipal Utility Relocation Policy

TSC Utility Coordinator

When a review of the water main characteristics, (age, material, type of joint, maintenance history, etc.,) indicates a possibility that leaving said water main in place could adversely impact the proposed design life of the pavement, a water main relocation study shall be performed.

The Region/TSC shall make a preliminary recommendation based on their study and submit this, plus all background data, to the Design Engineer, Municipal Utilities Unit – Design Division.

Region/TSC input into the water main relocation study should include the following:

a) Background data:
   1) Location of main – referenced to existing pavement
   2) Size of main
   3) Age of main
   4) Depth of main
   5) Pipe material and class
   6) Type of joint
   7) Maintenance record
   8) General comments – i.e., site specifics, etc.

b) Proposed conditions:
   1) Location of main - referenced to proposed pavement
   2) Depth of main - referenced to proposed pavement
   3) City proposed alterations or plans
   4) Construction conflicts - i.e., proposed storm sewer location, mucking operations, etc.

c) Conclusions and Recommendations
   1) Advantages/disadvantages of relocation
   2) Cost of relocation
   3) Region/TSC recommendation

9.02.01C (continued)

Design Division
Municipal Utilities Unit

The Municipal Utilities Unit, will make a recommendation based on the following:

a) Evaluation of information received from Region/TSC. This includes the following:
   1) Existing conditions
   2) Proposed conditions
   3) Region/TSC recommendation
   4) Maintenance records

b) Cost of relocation
c) Advantages/disadvantages of relocation
d) Proposed design life of pavement
e) Expected remaining life of existing water main
f) Grading that results in less than adequate cover
g) Potentially adverse materials or conditions:
   1) Ductile iron pipe (Class 52) older than 50 years
   2) Ductile iron pipe (Class 50 or 51) older than 30 years
   3) Cast iron pipe of Class 20 or 21 older than 30 years
   4) Cast iron pipe of Class 22 older than 50 years
   5) Pit cast iron pipe older than 70 years
   6) Asbestos cement pipe older than 15 years
   7) Non-reinforced concrete pipe older than 30 years
   8) Plastic pipe with an SDR of less than 17.5 and older than 15 years
   9) Wood pipe
   10) Pipe with leaded joints
   11) Mechanical joints older than 50 years
   12) Thrust restraint by tie rods or friction clamps older than 50 years
   13) Metal pipe installed in acidic soil conditions
h) Past experience and expertise
9.02.01C (continued)

Municipal Utility Relocation Policy

If the final joint (Region/TSC and Municipal Utilities Unit) recommendation is to relocate the facility, and said relocation costs have been programmed, design plans for the relocation will be developed by the Municipal Utilities Unit.

However, if the final joint recommendation is to relocate and the costs have not been programmed, a decision by the Region will be required. Their decision shall be based on all pertinent data, including the perceived advantages/disadvantages of each option, plus their ability to reallocate Region funds for this purpose. Failure of the Region to reallocate funds will result in only relocating utilities in direct construction conflict with the construction project. For further information refer to Guidance Documents 10086 and 10087.

9.02.02 (revised 2-19-2013)

Private Utility Relocation Policy

Private utilities are those utilities that are individually owned or owned by groups of individuals and stockholders. Private utilities normally provide communication services (telephone, cable TV, etc.), electric service, gas and oil.

Private utilities may be located within trunkline right-of-way, by permit issued by the Department. Act 368, Public Acts of 1925 allows private and Municipal Utilities use of the right-of-way by obtaining permission in the form of a permit issued by the Department. If conflicts between private utilities and a trunkline improvement project exist, relocation or adjustment of the utility is at the utility company's expense as stated in Act 368, Public Acts of 1925. However, if a utility company has right of occupancy in its existing location, they may meet the eligibility requirements for reimbursement.

9.02.02 (continued)

It may be possible for the Designer to make adjustments or changes to the plans to avoid or reduce conflicts. This may eliminate or reduce the relocation costs. Every effort should be made to minimize utility conflicts while maintaining the integrity of the construction project.

Possible utility conflicts should be investigated early in plan development. Coordination between the Designer, the TSC Utility Coordinator and the Utilities Coordination & Permits Section of the Development Services Division is very important. Plans are to be distributed to the utility companies as described in Chapter 14 Sections 14.16 and 14.26.

9.02.03

Section deleted.
Including Utility Work in Contracts

The Utilities Coordination & Permits Section of the Development Services Division established a procedure for billing utility companies for expenses incurred as part of a construction project. The Designer should be aware of this procedure as it includes information on which items may be reimbursable.

A. General

Utility companies occupying trunkline right-of-way by virtue of Act 368, P.A. 1925, and the Michigan Department of Transportation's Utility Accommodation Policy are subject to relocating their facilities at their expense if a conflict exists due to a Department project. If during the preliminary design and utility coordination meetings it is determined that the Department can make adjustments to its plans which would allow either the utility company's facilities to remain in place or reduce their relocation cost, efforts should be made to do so if the overall Department project is not affected. If the utility company is located in MDOT right-of-way by permit, costs incurred by the Department to revise its plans in order to accommodate a utility company are billable to that utility company. Such adjustments will require coordination and concurrence with the Utilities Coordination and Permits Section of the Development Services Division.

Utility companies with facilities that have manholes within the roadway are responsible for adjusting these manholes if required by the project. Most utility companies will adjust their own manholes during the course of the project which will require a Notice to Bidders - Utility Coordination in the proposal. However, provisions may be made at the utility company's request to include adjustment of their manholes in the work items of the project. Including manhole adjustments or any other utility work or project re-design costs, will be charged to the utility.

Municipal utilities shall not be charged any relocation costs due to project conflicts within their corporate limits except as provided for in the water main relocation policy. (See Section 9.02.01B) If they are operating outside their corporate limits, relocation costs would be at their expense and any chargeable project expenses are to be administered through the Governmental Coordination Engineer.

The Governmental Coordination Engineer is to be contacted if a project involves relocation of municipal utilities or chargeable expenses are incurred and the municipal utility is operating outside the corporate limits of the municipality.

An agreement shall be required in the event chargeable expenses are involved.
Including Utility Work in Contracts

B. Procedures

This procedure shall be used when work on behalf of a non-municipal utility is to be performed by MDOT contractor during construction. Upon a mutual agreement between a utility and MDOT, work items are incorporated in MDOT road and/or bridge construction projects and charged to the utility.

Note: Municipal utility work shall be coordinated with the MDOT Design, Municipal Utility Section.

Example work items that may be chargeable to a utility through this process include adjustment of utility manholes, existing facility removals, supporting utility poles, and utility bridge attachments.

Project Manager / TSC Utility Coordinator

1. Convene a meeting with the TSC Utility Coordinator, Project Manager (PM), and each utility to determine whether any work on behalf of the utility shall be included in the project. The following utility coordination issues shall be discussed:
   - Proposed construction schedule
   - Type of work required
   - Plan Completion Date

Project Manager

2. Ensure the agreed upon utility work is included in the plans and appropriate contract documents.


   Note: When the total estimated cost of the utility work is less than $1,000, MDOT shall not charge the utility. MDOT shall incorporate the utility work into the project at no cost to the utility. If a pay item(s) is not federally participating, it shall be funded 100% by MDOT.

   Note: For asbestos removal and disposal estimates, contact Bridge Field Services.

4. Send Form 0223 to TSC Utility Coordinator if the total estimated cost of the utility work is greater than $1,000 and less than $100,000. The appropriate plan sheets that indicate or illustrate that the utility work has been included in the project shall also be sent, if available.

   Note: For costs greater than $100,000, an individual agreement shall be required. The PM shall contact MDOT Development Services Division - Agreements Section to initiate this request.

5. Receive copy of Form 0223 and Utility Approval Letter (see example of Utility Approval Letter) or notification of utility denial from TSC Utility Coordinator.
Including Utility Work in Contracts

6. Develop a special provision that covers all work for the utility, except for asbestos removal and disposal as noted below. Refer to the Special Provision for Utility Coordination and Utility Work Example, (Exhibit 1802.06c). The pay item shall be established as a lump sum pay item, with an established maximum based on the line titled as “Maximum Contract Bid Amount (125% of Subtotal)” from Form 0223.

   Note: The maximum contract bid amount is not the “Total Maximum Charge to the Utility.”

   Note: Lump sum pay item(s) for utility work are the preferred method. However, per unit pay item(s) can be considered for items of work that are not suitable as lump sum.

   Note: When the utility work involves asbestos removal and disposal, use the frequently used Special Provision for asbestos removal and disposal, (Document 12SP-204A-02). Asbestos related work will be paid as a dollar amount and not as a lump sum. The Special Provision for Utility Coordination and Utility Work is not needed for this work.

7. Establish a separate non-federally participating category in AP Preconstruction for each utility.

8. Ensure JobNet reflects the utility funding.
9.02.04B (continued)

Including Utility Work in Contracts

Utility Charge Estimate Example

<table>
<thead>
<tr>
<th>ITEM</th>
<th>UNIT</th>
<th>QUANTITY</th>
<th>PRICE</th>
<th>CHARGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHANGE IN BRIDGE CARRYING CAPACITY</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATERIALS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protective shielding, utility pipes (includes labor)</td>
<td>foot</td>
<td>533.32</td>
<td>$2.50</td>
<td>$1,333.33</td>
</tr>
</tbody>
</table>

| TOTAL CHARGE FOR MATERIALS | $1,333.33 |

| LABOR | | | | |

| TOTAL CHARGE FOR LABOR | SUBTOTAL | $1,333.33 |
| MAXIMUM CONTRACT BID AMOUNT (125% of Subtotal) | | $1,666.66 * |
| PE & CE ENGINEERING (20% of Maximum Contract Bid Amount) | | $333.33 * |

| TOTAL MAXIMUM CHARGE TO UTILITY | $2,000.00 * |

*These are estimated maximum costs, actual costs are based on the contract bid amount.
Example of Special Provision for Utility Work

<table>
<thead>
<tr>
<th>Contract Item (Pay Item)</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utility Work, AT&amp;T, $__ Max.</td>
<td>Lump Sum</td>
</tr>
<tr>
<td>Utility Work, Consumers Energy, $__ Max.</td>
<td>Lump Sum</td>
</tr>
</tbody>
</table>

Utility Work, AT&T, $__ Max and Utility Work, Consumers Energy, $__ Max includes all labor, equipment and materials necessary to complete the work as described.
Example of Utility Approval Letter

Utility Company Name & Address          Control Section:
                                         Job Number:
                                         Location:

Dear __________________:

Utility Company Name has requested the Michigan Department of Transportation (MDOT) to include certain items of work in our contract for the above-referenced project. Enclosed is a copy of the estimated cost to perform this work. If Utility Company Name chooses to have MDOT include this work in our contract, please indicate so by signing below and returning this letter to my attention. Utility Company Name will be expected to make payments, when invoiced, as the MDOT contractor completes the work.

If you have any questions concerning this matter, please feel free to contact me at ____________________________

Sincerely,

TSC Utility Coordinator

Enclosure

I concur with the estimate for this project and agree on behalf of Utility Company Name to accept financial responsibility for the costs indicated on the Utility Charge Estimate. Utility Company Name also agrees to accept the cost responsibility for any additional quantities, above those shown on the Utility Charge Estimate, that field conditions warrant.

Name (Print): __________________________  Title: __________________________

Signature: ____________________________  Date: __________________________
Section deleted.
9.03

DESIGN GUIDES

9.03.01 (revised 8-26-2019)

Utility Poles and Light Standards

Guidelines have been developed for the location of utility poles and light standards on free access roadway construction projects. These guidelines, which follow, reflect the most recent fix-object crash research and is the Department's latest effort to provide for the safety of the motoring public. Where reconstruction of a roadway is included in the project, every effort should be pursued to ensure that adjacent poles meet the recommended location criteria. However, if the project does not impact the location of existing poles, a specific pole relocation is to be dependent on a concentrating of crashes or clear potential for crashes for the pole to be relocated.

When placed within public roadway right-of-way, light standards and utility poles should be located to provide a safe recovery area for motorists. To ensure maximum safety, this guideline is established to assist appropriate representatives in selecting the most practical and safe utilization of public rights-of-way. This guideline applies to all highway, utility, and roadway lighting construction projects on free access roadways.

A. General Considerations

It should be recognized that this is a guideline and that individual cases may arise which require special treatment such as: traffic signal installations; locations demonstrating fixed-object accident patterns; and locations with unique design problems, sight distance restrictions, high pedestrian activity, or unique environmental conditions. Departmental review procedures will take these factors into account.

9.03.01A (continued)

Certain highway geometrics warrant special consideration for placement of light standards and utility poles. Target positions to traffic flow should be avoided if possible. Such locations are: opposite T-intersections, outside of curves, beyond lane drops, and those locations that are not conducive to safe traffic operation. Where guardrails or barriers are in place specifically for shielding other roadside obstacles, light standards and utility poles should be placed behind the guardrail or barrier. The number of light standards and utility poles should be kept to a practical minimum. Consideration should be given to utilizing joint-use construction where possible.

B. Authorization

1. Any variances from this guideline will be resolved by the concerned parties. Concerned parties could include MDOT, FHWA, Local Governmental Units, the utility, the business community, citizen groups, and so forth.

2. The Development Services Division handles applications for a permit to place light standards or utility poles will be made on forms furnished by the Michigan Department of Transportation and shall be accompanied by a sketch showing the proposed locations in relation to the pavement edge or curb face and right-of-way, and should also include the posted speed limits and the widths and locations of any sidewalks.

C. Clarifications of Terms

1. The placement of light standards and utility poles referred to in this guideline includes all related appurtenances.

2. All lateral distances are measured from traffic side of utility pole or light standard to pavement edge or curb face.
Utility Poles and Light Standards

D. Lateral Offset Guideline

Light standards and utility poles should always be placed as far from the roadway as feasible.

1. Where posted speeds are less than 35 mph:
   a) In areas with curb types F & C (as specified on Standard Plan R-30-Series) or their equivalent, light standards and utility poles should be a minimum of 6' back of face of curb.
   b) In areas with curb types B & D or their equivalent, light standards and utility poles should be a minimum of 15' from edge of pavement.
   c) In Central Business District (CBD) areas with curb types F & C or equivalent and continuous sidewalk between the curb and buildings, light standards and utility poles may be placed 2' back of face of curb.
   d) Where pedestrian and bicycle traffic will take place on sidewalks or sidepaths designers should consider these users when deciding on proper placement of utility poles.

2. Where the speed limit is 35 mph or greater on tangent roadways with flat side slopes, light standards and utility poles should be placed according to the following table, regardless of the presence or absence of barrier curb.

<table>
<thead>
<tr>
<th>SPEED LIMIT mph</th>
<th>LATERAL OFFSET feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>35</td>
<td>18</td>
</tr>
<tr>
<td>45</td>
<td>20</td>
</tr>
<tr>
<td>50</td>
<td>25</td>
</tr>
<tr>
<td>55</td>
<td>30</td>
</tr>
</tbody>
</table>

9.03.01D (continued)

These lateral offsets should be increased for steeper slopes and for horizontal curves. Any variances from this guideline will be resolved by the concerned parties.

Light standards on roadways with a speed limit of 35 mph or greater that cannot be placed equal to or greater than the prescribed distances shall be equipped with a "Frangible Device." The device shall meet NCHRP 350 criteria and be certified by FHWA (as proven by a letter of acceptance from FHWA).

When placing utility poles in locations where sidewalks or side paths are absent, but likely in the future, the designer should consider the future construction of these non-motorized facilities when selecting utility pole placement so not to conflict future construction.

E. Light Standard Details

All light standards must be detailed on the design plans. MDOT details for light standards (non-frangible base), frangible base, and square aluminum light standards are available by contacting the Design- Municipal Utilities Unit. Shop drawings and design calculations for all light standards are to be submitted to the Design-Municipal Utilities Unit and the MDOT Structural Fabrication Unit – Operations Field Services Division for review and subsequent approval by the project manager. This applies to all light standards and more importantly to details other than those developed and provided by MDOT.

Any light standard foundation(s), light standard(s), or portions thereof being considered for salvage and reuse, must first be inspected by the MDOT Structural Fabrication Unit – Operations Field Services Division during the planning or design stage of the project. Contact the MDOT Structural Fabrication Engineer to arrange for inspection.
MICHIGAN DESIGN MANUAL
ROAD DESIGN

9.03.02 (revised 12-22-2011)

Municipal Utility Alterations and Notification of Utility Design Units

Municipal Utility alterations are most often designed by the Utilities, Drainage, and Roadside Section of the Design Division. The most common alterations are designed by the Municipal Utility (water main and sanitary sewers), Hydraulics (drainage and storm sewer cost participation), and the Electrical (freeway lighting) Design Units. Close coordination between the Road or Bridge Design Unit and the Utility Design Units is needed.

The designer must inform the Utilities, Drainage, and Roadside Section of possible involvement early in the project design. After a scope verification meeting is held and plans are developed sufficiently to identify possible utility involvement, a set of prints should be sent to the appropriate Utilities, Drainage and Roadside Section Design Unit. This informs that particular design unit of their possible involvement and establishes a contact that should continue as the project progresses.

9.03.03 (revised 2-19-2013)

Utilities on Plans

All available utility information should be in the plans as soon as it becomes available. This information may be from survey, old plans, a Subsurface Utility Engineering (SUE) consultant, and/or information provided by the utilities. Approximate location, size and type of utility should be indicated. The names of the utility companies and contact information by Control Section may be obtained from the TSC Utility Coordinator.

All utilities carrying dangerous, hazardous, or critical materials should be flagged on all plan sheets where the utility is shown. A boxed in note in bold letters should be connected to all high voltage lines, gas and oil lines, and to other lines carrying critical materials. These may include fiber optics, water transmission lines 36” and larger, asbestos cement pipes, and so forth. Acceptable examples of such flags are: “Hazardous”, “Flammable Material”, or “Caution-Critical Underground Utility”. Refer to the Road Sample Plans.

All plans involving any excavation should include the "Miss Dig" note. "Miss Dig" provides a central source of information regarding the location of underground utilities throughout the state. Most underground utilities participate in the "Miss Dig" system but the note on plans should carry a disclaimer. The note reads or is similar to the following:

*For protection of underground utilities, the Contractor shall dial 1-800-482-7171 a minimum of 72 hours (three working days excluding Saturdays, Sundays, and Holidays) prior to excavating in the vicinity of utility lines. All "Miss Dig" participating members will thus be routinely notified. This does not relieve the Contractor of the responsibility of notifying utility owners who may not be a part of the "Miss Dig" alert system.*
Utilities on Plans

Because of legal problems in other states, Designers should not label abandoned or out of service utilities as "abandoned." Such lines should be labeled "Utility Line Out of Service." The utility owner, if known, should also show on the plans. Also, to protect the Contractor from damage from an abandoned line or one to be abandoned because of utility relocation, place the following on the note sheet:

*Plan information indicates an existing underground utility is or will be out of service within the limits of this contract. The Contractor is cautioned to treat such a line as if it were still in service and notify "Miss Dig" when working in the area of the out of service facility.*

Survey measurements are made to the face of utility poles and they should be plotted with this in mind. This is important in determining accurate clear zones and side clearances.
9.04

MISCELLANEOUS

9.04.01 (revised 9-25-2017)

Utility Trenches

Utility trenches for buried utilities are shown on Standard Plan R-83-Series. Trenches both under roadbeds and not under roadbeds are covered. The standard also gives guidelines for trench widths and pavement removal requirements.

For permanent trench pavement cross-section replacement, the replaced engineered cross-section (including the pavement, base, and subbase layers) should be structurally equivalent to the existing pavement section on either side of it as defined by MDOT pavement design guidelines. Preferably, the replaced cross-section should match in materials and thicknesses to the existing pavement on either side of it. However, constructability or material availability may prohibit the exact replacement. In these instances, the replaced cross-section can be of different materials and/or thickness, but should be as similar as possible and ultimately maintain structural equivalency to the existing pavement section on either side of it. Contact the MDOT Region Soils Engineer for current MDOT pavement design guidance and assistance for determining structural equivalencies.

9.04.02 (revised 10-20-2008)

Overhead Power Lines

Overhead power lines can cause many problems in construction areas. Underclearance and other conflicts with heavy construction equipment must be avoided.

A warning flag on the plans should show all available information about overhead high voltage transmission lines. This should include the width of the airspace occupied by the lines and any available elevations along the lines.

9.04.03 (revised 2-27-2012)

Permit Applications

Municipalities and Private Corporate Utilities may require permits or other approvals for utility alterations or the installation of new utility facilities. Coordination with the appropriate design unit of the Utilities, Drainage and Roadside Section of the Design Division, the Utilities Coordination & Permits Section of the Development Services Division, and the TSC Utility Coordinator is needed to determine the current requirements for permits and approvals. Refer to Chapter 14 – Procedures for Plan Preparation.

9.04.04 (revised 10-20-2008)

Temporary Utility Hook-Ups

Occasionally a project requires utility services for contractor operations such as electrical power feed on a rest area or pumphouse job. A budgeted amount should be included in the proposal to compensate the contractor for arranging and paying advanced fees for connection and service.

Information on cost breakdown and utility contact is needed to prepare a special provision to show the budgeted amount. When electrical service is required, the Electrical Design Unit will contact the utility company for all necessary information. When other utility services are required, contact with the utility company is made through the TSC Utility Coordinator.

9.04.05

Water Main Appurtenance

Adjustments and relocation of fire hydrants, valve boxes, water manholes, water shutoffs and service connectors requires coordination with the Design Engineer - Municipal Utilities.
9.04.06 (revised 11-26-2012)

Gas Main Relocation Policy under Pavement Widening and Reconstruction

The following is policy for the relocation of gas mains under pavement widening and reconstruction projects.

1. All gas mains (distribution or transmission) may remain under proposed widening areas unless the main has a history of frequent repairs or is cast iron, 6” or less in diameter. The maintenance records furnished by the gas companies will be reviewed by the TSC Utility Coordinator, and if the report indicates there have been no repairs in the five preceding years, the gas main may remain. If, however, there have been repairs during this period of time, it will be reviewed with the Michigan Public Service Commission as to the necessity for removing the gas main.

2. No main shall be required to be relocated:
   a) When the construction project is less than ½ mile in length.
   b) Where relocation would require extensive private easement.

While extenuating circumstances may exist to modify the above procedure, only extreme conditions will warrant deviation from these requirements. Contact the Development Services Division, Utilities Coordination & Permits Section Manager.

All documentation pertaining to the disposition of gas mains must be saved in ProjectWise in the Utilities, Drainage and Roadside subfolder.

9.04.07 (revised 4-22-2019)

Sanitary Sewers and Water Mains

Existing sanitary sewers should not be disturbed unless they would be in conflict with a proposed construction project. Existing combined sanitary and storm sewers should not be used for drainage purposes on a new roadway or improvement project. A permit from the Water Division of the Michigan Department of Environment, Great Lakes and Energy (MDEGLE) will be required, when an existing sanitary sewer is adjusted or moved. All sanitary sewer designs must be coordinated with the Design Engineer - Municipal Utilities. On certain projects, previous agreements may have been made between the MDOT and the city or village as to the disposition of sewers. Designers should check with the Governmental Coordination Engineer regarding agreements.

The Design Engineer – Municipal Utilities, must be contacted in all cases where sanitary sewers, water mains, and other municipal utilities are encountered or are in conflict. The Design Engineer - Municipal Utilities will then contact and coordinate with the affected municipality.

City of Detroit - The Design Engineer - Municipal Utilities will contact the City of Detroit when a City of Detroit sewer system is a part of a Department project or when the Department constructs a sewer system that will be maintained by the City of Detroit. This includes catch basins located in service roads, existing streets, and easements. Also included is the last connecting sewer run that drains from a catch basin or manhole of a ramp or turning roadway to the City of Detroit sewer system.
9.04.07 (continued)

Sanitary Sewers and Water Mains

The Design Unit is reminded to use the appropriate trench details shown on Standard Plan R-83-Series, and to determine from the current specifications for City of Detroit sewers, the premium joint type. The size of sewer, along with the type and quantity of premium joints should be included in the proposal.

Communities other than City of Detroit -
On projects that require rebuilding or relocating sanitary or combination sewers, premium joints are required, the quantity and size of sewer and the type of joint should be shown in the proposal. A special provision will be required for special items.

9.04.08

Sanitary Sewer Leads to Houses

On projects where sanitary sewer house leads are encountered, some disposition of the existing sewer usually has to be made. This may entail reconstructing the lead, bulkheading and abandoning the lead, or just bulkheading the lead.

9.04.09 (added 2-19-2013)

Subsurface Utility Engineering (SUE)

SUE is defined as a branch of engineering practices that involves managing certain risks associated with utility mapping at appropriate quality levels, utility coordination, utility relocation design and coordination, utility condition assessment, communication of utility data to concerned parties, utility relocation cost estimates, implementation of utility accommodation policies, and utility design. [American Society of Civil Engineers (ASCE) Standard 38-02]

This section addresses basic information about SUE. It also provides general guidelines to assist the TSC Utility Coordinator and the Project Manager with determining whether or not SUE contracted services shall be considered for a particular project. It is not intended to be an all-encompassing document or to replace sound engineering judgment, which is the basis for deciding whether or not to use SUE.

Funding for SUE contracted services are typically funded from the project’s design phase budget. It is recommended that an evaluation on the merits of applying SUE be done early during the project’s scoping or design phase so that appropriate funding, if needed, may be allocated. The earlier the need for SUE services are identified, the better these services may be coordinated during the project’s design phase.

If the need for SUE contracted services are determined prior to the development of the design scope of work it is recommended that SUE services be included as part of that scope. This is particularly beneficial on consultant design projects where the prime consultant is then responsible for both the design and SUE services. This tends to enhance coordination of these functions during the project’s design phase.
Subsurface Utility Engineering (SUE)

All SUE providers shall be selected from MDOT’s SUE prequalification list.

The following guidelines provide items to consider when making a determination of whether to consider using SUE for a given project. It is not intended to be all inclusive.

- Impact of encountering unknown subsurface utility conflicts during construction
- Impact of encountering inaccurately located subsurface utilities presents a high probability for delay of the projects completion schedule, and/or may increase contractor cost
- Critical nature of project progress schedule and/or completion date
- Potential safety risks involved with the project as it relates to subsurface utilities present
- Type and amount of subsurface utilities present

SUE may be applied to varying degrees on a project depending on the situation. A project may include one or multiple utility quality levels depending on the risk factor associated with each subsurface utility. Subsurface utility data evaluation is an important part of the utility coordination and SUE process. The following section provides issues to consider when determining what specific quality level to choose.

Utility Quality Levels - A professional opinion of the quality and reliability of utility information. Such reliability is determined by the means and methods of the professional. Each of the four existing utility data quality levels is established by different methods of data collection and interpretation. (ASCE Standard 38-02)

Utility Quality Level D - Information derived from existing records or oral recollections. (ASCE Standard 38-02)

Utility Quality Level C - Information obtained by surveying and plotting visible above-ground utility features and by using professional judgment in correlating this information to quality level D information. (ASCE Standard 38-02)

Utility Quality Levels D and C are typically used on almost all MDOT construction projects. Both involve contacting utility owners and obtaining available utility records. They may also include a site visit to survey visible surface features that may be used to verify utility records.

Utility Quality Levels D and C are typically suitable when a project has only a few subsurface utilities, their location is fairly well known, and there is not much risk in only using available utility records provided by the utilities.

Utility Quality Level B - Information obtained through the application of appropriate surface geophysical methods to determine the existence and approximate horizontal position of subsurface utilities. Utility Quality Level B data shall be reproducible by surface geophysics at any point of their depiction. This information is surveyed to applicable tolerances defined by the project and is reduced onto plan documents. (ASCE Standard 38-02)
Subsurface Utility Engineering (SUE)

Utility Quality Level B, also referred to as “designating”, involves the horizontal mapping of subsurface utilities to a project’s survey control. Obtaining Utility Quality Level B information is a good idea to consider when the project owner does not want to take any chances. It is suggested that Utility Quality Level B information be considered for those subsurface utilities that have discrepancies or may impact the project if not in the exact or close to the position shown. Once the Utility Quality Level B information is obtained, it is compared with the project plans to identify conflicts. Obtaining Utility Quality Level B information shall also be considered when:

- Discrepancies are apparent between what is shown on utility records and what is represented in the field.
- The project involves lots of utilities and/or the utility owners are unsure of their location.
- An adverse effect on the project could be caused by utilities that are not shown accurately on the records.
- Impact of delay based on horizontal location received from utility records may cause the project to miss a critical project completion date.
- It is suspected that there are more utilities in the project limits than what are shown and/or received from utility records.
- It is suspected that there are buried structures (tanks and/or foundations) not shown on drawings.

Utility Quality Level A - Precise horizontal and vertical location of utilities obtained by the actual exposure (or verification of previously exposed and surveyed utilities) and subsequent measurement of subsurface utilities, usually at a specific point. Minimally intrusive excavation equipment is typically used to minimize the potential for utility damage. Precise horizontal and vertical location, as well as other utility attributes, is shown on plan documents. Accuracy is typically set to 15-mm (approximately 5/8”) vertical and to applicable horizontal survey and mapping accuracy as defined or expected by the project owner. (ASCE Standard 38-02)

Utility Quality Level A, also referred to as “locating”, involves using non-destructive excavation techniques for example, air-based vacuum excavation to expose the subsurface utility and then obtain its precise horizontal and vertical position. It is important to consider using Utility Quality Level A when any of the following condition exists:

- A subsurface utility could have a major impact on the project and thus knowing the exact position is critical.
- Precise vertical location of subsurface utilities is critical to a design feature of the project. This often occurs when modifying a design in order to leave a utility in its current location.
- Proposed grade changes may require subsurface utility relocations or cause a utility to have insufficient cover.
- There is a possibility that subsurface utilities’ vertical elevations could be inaccurate.
- Impact of delay, based on vertical location received from utility records, may cause the project to miss a critical project completion date.
Lighting Project – Energy Rebate Procedure

Most major energy companies (i.e. Consumers Energy, DTE, Lansing Board of Water and Light, Cloverland Electric) have annual energy reduction incentive rebates. Energy company participation in rebate incentives and contact information can generally be found on their respective websites. Contact the statewide electrical engineer if this information is not found or is unclear.

The amount of the rebate is based on the percent of energy reduced from conversion of existing lighting fixtures to more energy efficient fixtures. New lighting installation projects do not qualify for rebates. The reduction of energy on existing lighting must be determined from utility electric meter KWH readings.

The MDOT or consultant designer initiates the rebate request by verbal contact with the energy company early in the preliminary plan development phase, then subsequently by formal application. Incentives are available on a “first come/first served” basis, until annual funding has been exhausted. Consultant lighting designers must notify the statewide electrical engineer when a rebate incentive has been initiated on behalf of MDOT.

When conversion of lighting fixtures are performed by MDOT forces, the request to the energy company for an incentive rebate is made by the design engineer (either the MDOT statewide electrical engineer or the region designer) during the design and prior to the start of work.

The information submitted to the utility company required for the incentive request consists of the lighting plans, utility electric meter numbers, shop drawing submittals of the proposed lighting and the type of existing lighting presently installed.

The utility company then reviews the information and approves the request as submitted to reserve the incentive funds to be awarded once the project is complete. As part of the approval process, the utility company calculates the rebate amount for the qualifying project work from the documentation provided.

Upon completion of the lighting installation, the MDOT statewide electrical engineer requests a final inspection by the utility company of the new lighting installed. Typically, within four to six weeks from the final inspection, MDOT receives the rebate incentive check from the utility company. Forward all rebate checks to the statewide electrical engineer for processing.
MICHIGAN DESIGN MANUAL
ROAD DESIGN

9.05 (added 3-26-2018)

MUNICIPAL UTILITY
COORDINATION WORK

If during scoping and the stakeholder engagement process it is determined that municipal utility work is going to be included using funds secured by the local agency that are outside of MDOT/FHWA sources, the project manager at the time of scoping should:

- Request from the local agency the funding sources being used.
- Determine any unique contract requirements for the inclusion of the utility work into the project.
- Allow time in the project schedule for outside agency approvals and coordination in plan development and construction administration.
- Contact the Manager of the Construction Contracts Section in Contract Services Division, Bureau of Finance and Administration.

It is important that Contract Services Division be consulted so that any other requirements, such as, agency approval prior to the project award, securing of local agency loans and similar items that may require special attention during the award process for that portion of the project be addressed, as well as, the drafting of any needed special provisions.

All non-MDOT/FWHA funds should be treated as if they were the local agency’s funds. Special and unique requirements by other agencies, such as the U.S. Department of Housing and Urban Development and the U.S. Department of Agriculture, should be addressed by the project manager before the plan review meeting. MDOT follows FHWA requirements in the administration of construction contracts, any deviation should be at the discretion the Contract Services Division in consultation with FHWA, Michigan Division.

9.05 (continued)

MDOT is not a party to any agreement between the local agency and the funding provider.

Arrangements for construction engineering are addressed on a case by case basis depending on the amount of utility work in the project in comparison to the amount of the road work and who is performing the construction engineering.

If construction engineering and inspection is being performed by both MDOT and the local agency, the payment to MDOT from the local agency should be agreed upon and put into the cost participation agreement. This should be a lump sum price.

The estimated amount of utility work will use a flat percentage for Construction Engineering (CE) of that utility work. A determination will be agreed upon for the level of effort which is going to be performed by department forces and a starting point for the percentages will be as follows:

- 15% Total Amount of Utility Work for CE
- 5% of total amount of utility work for MDOT CE
- 10% of total amount of utility work if locals are providing CE

For example, if the department is providing all the CE for the utility work, then the starting point for negotiation should be 15%. If the department is doing no CE for the utility work, a minimum of 5% is required from the local agency to the department for contract administration.
9.05 (continued)

MUNICIPAL UTILITY
COORDINATION WORK

When requesting the local participation agreement, standard added work language should be used and a deposit may apply. Contact the Governmental and Trunkline Engineer, Development Services Division for specific deposit amounts. In the event of USDA Rural Development funds, no deposit will apply for Act 51 agencies. When a non-Act 51 agency is using those funds, the department will charge a 100% working capital deposit.

It should be understood, that regardless of who performs the construction engineering and/or inspections, MDOT is responsible for the construction oversight and is only allowing the local agency to perform inspections as a courtesy.