

ROAD DESIGN MANUAL

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9.01 REFERENCES

(revised 7-25-2022)

- A. [MDOT Drainage Manual](#)
- B. MDOT Utility Coordination Manual
- C. 49 CFR 645.105
- D. Public Act 51 of 1951
- E. Public Act 368 of 1925

9.02 MUNICIPAL AND PRIVATE UTILITY RELOCATION POLICIES AND PROCEDURES

9.02.01 Municipal Utility Relocation Policy

(revised 7-25-2022)

9.02.01A Definitions

Betterment: any upgrade to an impacted utility beyond what is required to return it to the level of service (both existing and potential) prior to the Department project. Such upgrades may include capacity, materials, or locations. These upgrades are made solely for the benefit of and at the election of the *Municipal Utility*. Note: Upgrades from the existing system necessary to make the system compliant with minimum standards are not considered betterments.

Department: The Michigan Department of Transportation (MDOT).

Direct Conflict: any *Municipal Utility* requiring an adjustment or alteration to facilitate completion of a Department project (trunkline need).

EGLE: the Michigan Department of Environment, Great Lakes, and Energy.

Indirect Conflict: a water main that does not create a direct conflict with a Department project but whose location or condition may compromise the design life of the project, as determined by a municipal utility relocation study performed by the Department and/or a consultant.

Municipal Convenience: Municipal utility work included on Department projects that occurs solely at the municipality's discretion. The existing municipal utility does not present a direct or indirect conflict. Typically occurs because of the cost efficiency gained by the municipality because of the work already conducted by the Department (maintenance of traffic, removal of pavement, etc.).

Municipal Utility: a *Utility* or service owned, operated, and maintained by a recognized governmental entity within its corporation or jurisdictional boundaries.

Municipal Utility Design Staff: Staff located in the *Department's* Road and Municipal Utility Design Unit that are responsible for assisting and fulfilling the responsibilities within this Chapter.

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Permit: A legal document used to grant permission to private, governmental, and public entities for occupying, constructing, operating, using, or maintaining specified operations or facilities within the state highway ROW.

Right-of-Way (ROW): Real property or interests therein, acquired, dedicated, or reserved for the construction, operation, and maintenance of a highway under the Department's jurisdiction, in which federal-aid or federal highway funds are or may be involved in any stage of development. This includes lands acquired for scenic areas adjacent to highways, rest areas, roadside parks, scenic turnouts or overlooks, or access to lakes and rivers.

Utility: Privately, publicly, or cooperatively owned lines, facilities, and systems for producing, transmitting, or distributing communications, cable television, broadband, power, electricity, light, heat, gas, oil, crude products, water, steam, waste, storm water not connected with highway drainage, and other similar commodities, including fire and police signal systems and street lighting systems, which directly or indirectly serve the public. The term utility also means the utility company inclusive of any wholly owned or controlled subsidiary.

9.02.01B General Information

1. Utility conflicts should be investigated early in plan development. Refer to [Chapter 14](#) Sections 14.16 and 14.26.
2. Counties, townships, cities, and villages will participate in those costs attributable to the trunkline needs pursuant to Public Act 51 of 1951, as amended.
3. Public Act 51 of 1951 requires the Department to bear the cost of removal and replacement of streetlights impacted by a trunkline highway project. Municipalities generally provide street lighting as a public service through agreements with electric utilities. The Department typically coordinates streetlight reimbursement with the electric utility provider rather than the municipality.
4. Public Act 368 of 1925 grants the Department the authority to provide for the regulation or arrangement of municipal utility installations that interfere with the operation, maintenance, or improvement of state trunklines and regulate the installation of any new facilities on the trunkline Right-of-Way (ROW). Any modification to municipal utilities within the trunkline ROW requires a permit from the Department.
5. All reconstructed or relocated municipal utilities will, when completed, remain the property of the original owner for all future jurisdictional, maintenance, and operational obligations.
6. The relocation, extension, or alteration of private utilities due to trunkline needs that occupy public ROW by permit or sufferance shall continue to be the responsibility of the utility owners.
7. Work performed by a municipality at project expense shall be subject to prior approval and authorization by the Department.
8. Cost distributions for joint or cooperative storm sewers will continue to be made in accordance with the [MDOT Drainage Manual Section 2.5.4](#), and are excluded from these guidelines.
9. Any agreements with municipalities must be initiated with the municipality through the [Trunkline Agreement Engineer](#).

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9.02.01C Municipal Utility Costs and Betterments

Municipal utilities are included in Department projects in any of the following capacities:

- Direct Conflict
- Indirect Conflict
- Municipal Convenience

The nature of the inclusion determines the Department's cost responsibility.

Note that any municipal utilities located outside of the municipality's corporate limits but within Department ROW that are relocated due to trunkline need will be at the municipality's expense (because the municipality is now acting as a private utility), unless it is conclusively determined that the affected utility only serves customers within the municipality boundary.

Additionally, in-kind replacement cost estimates are based on current commercially available materials that comply with the minimum standards.

Direct Conflict

A. In-Kind Replacement Cost

Direct Conflicts replaced in-kind will be a project expense. The limits of the replacement are limited to those necessary for the conflict to be mitigated.

B. Betterment Cost

Any betterments will be at the municipality's expense. The additional expense to be charged to the municipality is calculated as follows:

1. Estimate the expense to replace the utilities in-kind. This is the *in-kind expense*.
2. Calculate the increased cost of materials from the *in-kind expense* due to the betterment. This can be done by soliciting pipe supply vendors. This is the *materials increase*.
3. The *installation cost* for the betterment is calculated as 10% of the *materials increase*.
4. The Preliminary Engineering (PE) due to the betterment is calculated as 15% of the sum of the *materials increase* and *installation cost*.
5. The Construction Engineering (CE) due to the betterment is calculated as 15% of the sum of the *materials increase* and *installation cost*.
6. The total municipal participation for the betterment is the sum of the *materials increase*, *installation cost*, *PE*, and *CE*.

Indirect Conflict (Exclusive to Water Main)

The location and condition of water main can be a potential threat to the roadway due to the potential for future maintenance needs. When water main is located within the project limits, the Department will determine if a relocation is necessary to ensure the design life of the project is not compromised. This evaluation is referred to as a water main relocation study.

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Every project involving federal funds must have a water main relocation study performed if there is any intention to include utility expenses on the project in addition to those necessary for direct conflicts. Refer to [Section 9.02.01D](#).

A. In-Kind Replacement Cost

Since Indirect Conflicts are not necessary to be relocated for the project to proceed, but which would provide a benefit both to the Department and the municipality, non-federal funding for their inclusion into the project is split 50/50 between the Department and the municipality. This sharing amount holds true even if there is no federal participation.

1. Estimate the non-federal expense to replace the utilities in-kind (typically around 20% of the total replacement cost on projects containing federal funding). This is the *non-federal in-kind expense*.
2. The municipality's share of the *non-federal in-kind expense* is 50%. This is the *50% remainder*.
3. The *PE* is calculated as 15% of the *50% remainder*.
4. The *CE* is calculated as 15% of the *50% remainder*.
5. The total municipal participation for the in-kind replacement is the sum of the *50% remainder*, *PE*, and *CE*. This is used as an estimate for the municipality until actual costs are determined using official bid prices and the facility has been installed. Final costs are determined by the construction engineer.

B. Betterment Cost

Any betterments will be at the municipality's expense. The additional expense to be charged to the municipality is calculated as follows:

1. Estimate the non-federal expense to replace the utilities in-kind. This is the *non-federal in-kind expense*.
2. The municipality's share of the *non-federal in-kind expense* is 50%. This is the *50% remainder*.
3. Calculate the increased cost of materials from the *non-federal in-kind expense* due to the betterment. This can be done by soliciting pipe supply vendors. This is the *materials increase*.
4. The *PE* is calculated as 15% of the sum of the *50% remainder* and *materials increase*.
5. The *CE* is calculated as 15% of the sum of the *50% remainder* and *materials increase*.
6. The total municipal participation for the betterment for an Indirect Conflict is the sum of the *50% remainder*, *materials increase*, *PE*, and *CE*. This is used as an estimate for the municipality until actual costs are determined using official bid prices and the facility has been installed. Final costs are determined by the construction engineer.

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Municipal Convenience

Occasionally, a municipality will choose to include work on Department projects as a matter of convenience and to potentially lower their costs by capitalizing on the work that the Department will be conducting (maintenance of traffic, removal of pavement, etc.).

The Project Manager should determine any unique contract requirements for the inclusion of the utility work into the project and allow time in the project schedule for outside agency approvals, agreements, and coordination in plan development and construction administration.

Municipality Funding Considerations

If during scoping and the stakeholder engagement process it is determined that municipal utility work will be included using non-project funds, the Project Manager, during project development, should request from the municipality the funding sources being used. It is important that the Contract Services Division ([Manager of Construction Contracts](#)) be consulted so that any other requirements are appropriately addressed, such as agency approval prior to the project award, securing of municipal loans, and similar items that may require special attention during the award process.

All non-project 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 (PPD Task 3590). The Department follows FHWA requirements in the administration of construction contracts; any deviation should be at the discretion of the Contract Services Division in consultation with the Michigan Division of the FHWA.

The Department is not a party to any agreement between the municipality and the funding provider.

If Construction Engineering (CE) is being performed by both the Department and the municipality, the payment to the Department from the municipality should be agreed upon and put into the cost participation agreement. This should be a lump sum price. The estimated CE will typically be 15% of the total dollar amount of the utility work (but is not *part* of that total dollar amount). Therefore, if the Department is providing all the CE for the utility work, the starting point for negotiation with the municipality should be 15%. However, if the municipality is providing all the CE for the utility work, a minimum of 5% is still required from the municipality to facilitate the Department's contract administration. A combination of Department and municipality CE will require a negotiation of the appropriate percentages between 5% and 15% based on the expected contribution of each party.

Regardless of which party performs the construction engineering and/or inspections, the Department is responsible for the oversight and only allows the municipality to perform inspections as a courtesy.

When requesting the municipality participation agreement, standard added work language should be used and a deposit may apply. Contact the [Trunkline Agreement Engineer](#) 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.

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9.02.01D Water Main Relocation Studies

Prior to considering water main an indirect conflict and utilizing federal funds to relocate, it first must pass a two-part test. The first part is to determine if all the following conditions are met:

- The utility has the right of occupancy in its existing location.
- The utility is municipally owned.
- The utility occupies public Right-of-Way.
- The utility can be relocated to reduce future impacts.

The second part is to verify that the existing utilities are in one of the following locations:

- Under an existing pavement to be removed.
- Under an existing pavement's area of influence.
- Outside the existing pavement but under a proposed pavement widening.
- Under new roadways.
- Where the proposed grade significantly reduces earth cover or affects accessibility.

If the existing water main passes the two-part test, a water main relocation study must be performed that consists of input and recommendations from the Region/TSC Utility Coordinators and the Department's Municipal Utility Design Staff. The water main relocation study will determine if spending project funding on utility relocations is prudent and in the best interest of the project. Only relocations eligible for federal funding will receive a water main relocation study.

If the existing water main fails the two-part test, federal funds cannot assist in relocating the water main.

All municipal utility relocation study documentation must be saved in ProjectWise in the Correspondence/Utilities, Drainage, and Roadside subfolder.

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Region/TSC Utility Coordinator Responsibility

After determining that water main relocation is a candidate for federal funding, the Region/TSC Utility Coordinator will initiate the relocation study.

This study starts by gathering information on the existing water main to determine if its characteristics (e.g., age, material, type of joint, maintenance history, location, etc.) could adversely impact the design life of the project if left in place. This information should include:

1. Existing Conditions:
 - a. Location of water main in reference to existing pavement, bridge decks, piers, footings, etc.
 - b. Size of water main.
 - c. Age of water main.
 - d. Depth of water main.
 - e. Pipe material and class, if applicable.
 - f. Type of joint, if applicable.
 - g. Maintenance record.
 - h. General comments (e.g. site specifics).
2. Proposed Conditions:
 - a. Location of water main in reference to proposed pavement, bridge decks, piers, footings, etc.
 - b. Depth of water main in reference to proposed pavement.
 - c. Municipality-proposed alterations or plans.
 - d. Type of Impact (e.g., proposed storm/sanitary sewer location, mucking operations, changes in grade, etc.).
3. Conclusions and Recommendations:
 - a. Advantages/disadvantages of relocation.
 - b. Cost of relocation.
 - c. Region/TSC recommendation.

The Region/TSC shall make a preliminary recommendation based on their study and will notify the Municipal Utility Design Unit that this study is available on ProjectWise for their review.

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Department's Municipal Utility Design Staff Responsibility

The Department's Municipal Utility Design Staff will make a recommendation based on the following:

- Information received in the water main relocation study.
- Proposed design life of pavement.
- Expected remaining life of existing utilities.
- Grading that results in less than adequate cover.
- Past experience and expertise.
- Potentially adverse materials or conditions, including:
 - Ductile iron pipe (Class 52, 53, 54, 56) older than 50 years.
 - Ductile iron pipe (Class 50 or 51) older than 30 years.
 - Cast iron pipe of Class 20 or 21 older than 30 years.
 - Cast iron pipe of Class 22 older than 50 years.
 - Pit cast iron pipe older than 70 years.
 - Asbestos cement pipe.
 - Non-reinforced concrete pipe older than 30 years.
 - Prestressed concrete pipe older than 50 years.
 - Plastic pipe with an SDR of less than 17.5 and older than 15 years.
 - Wood pipe.
 - Pipe with leaded joints.
 - Mechanical joints older than 50 years.
 - Thrust restraint by tie rods or friction clamps older than 50 years.
 - Metal pipe installed in acidic soil conditions.

Recommendations are reviewed between the Region/TSC and the Department's Municipal Utility Design Staff. If it is decided to relocate the facility, the Region/TSC will determine if there are any budget constraints for moving forward with the relocation and will proceed accordingly.

Failure to proceed with the necessary funding will result in only Direct Conflicts being included in the project.

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9.02.01E Lead (Pb) and Galvanized Steel Water Service Line Replacement

Based on regulations from the Michigan Department of Environment, Great Lakes, and Energy (EGLE), partial replacements of water services containing lead (Pb) or galvanized steel that were once connected to lead (Pb) service lines are prohibited. Partial replacements are defined as any water service replacement that does not replace the entirety of the service line from the water main to the water meter before reintroducing water to that service. Impacted service lines must include replacement with proper materials outside the ROW, including from the curb stop into the building (or end user, where no building exists) being served.

Water service line replacement on Department projects can occur because of the following:

- When required by trunkline needs because of a Direct or Indirect Conflict.
- When performed by a municipality for its own benefit (Municipal Convenience).

Whether a Direct or Indirect Conflict, Department funding for water service replacement will only be allocated to the curb stop. All costs (including incidental costs such as surface restoration and ROW acquisitions) beyond the ROW are funded by the municipality; as noted in [Section 9.02.01C](#), work outside of the ROW is considered a betterment. Temporary water service, when required, is included in the ductile iron water main pay item.

This work must be coordinated with the Water Authority during the scoping and design of the project. The [Scoping Manual](#) requires that MDOT [Form 2483](#) be submitted to public and private utilities to gather information on their existing infrastructure. This form solicits information from municipalities on if any Pb or galvanized steel services are present within the vicinity of the project. If present, the Project Manager must contact the Department's Municipal Utility Design Staff when design is starting. The Department's Municipal Utility Design Staff will assist the Project Manager in ensuring compliance with both Department and EGLE requirements governing the replacement of such water services. If part-width construction (staging the project such that live traffic flow is maintained through the construction area on a reduced number of lanes, allowing for the balance of the road or bridge to be constructed) was selected to be the construction/maintenance of traffic methodology, it is possible that the water services will have to be directional drilled or jack and bored to avoid partial replacement. Part-width services can only be constructed provided that no water is introduced into the service until it is replaced in its entirety.

It is the ultimate responsibility of the Water Authority to facilitate the replacement of any Pb or galvanized steel services outside the ROW, regardless of which party is necessitating the replacement. If the Water Authority is not cooperative or willing to participate in the cost of these replacements (most notably from the curb stop to the water meter), the Designer/Utility Coordinator must contact the Project Manager and the Department's Municipal Utility Design Staff immediately to determine the proper course of action. Under no circumstances will a project be Advertised for Construction without Pb and galvanized steel service line replacements being addressed. This can be done in multiple ways:

1. A separate Water Authority project in coordination with the Department project. The Water Authority may elect to replace affected service lines with their own contract concurrent with the Department contract. A coordination clause between contracts will have to be included in the contract to ensure timely successful completion of the work.

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2. The Water Authority work is included in the Department project. Project Managers must request that the Water Authority provide a written inventory of the water services and locations, including material types and sizes, expected to be encountered in the project. This information may have already been received as part of the scoping phase. This inventory is to be included in the water main materials special provision.

The Water Authority is responsible for securing permission to work outside the existing ROW from the property owner and therefore Uniform Act requirements do not apply. This permission must be compliant with Subpart A of 23 CFR 645 titled "Utility Relocations, Adjustments, and Reimbursement," specifically 23 CFR 645.111 titled "Right-of-Way."

The Water Authority must provide the Department with written certification stating all property interest necessary to construct the service line replacement has been acquired to do work outside the ROW. The Water Authority certification must be included in the Department ROW certification.

3. The Water Authority is granted an exemption from EGLE (Mich. Admin. Code R. 325.10302). It may be acceptable for the Water Authority to provide documentation of an exemption granted from EGLE to allow the portions of Pb and galvanized steel service lines between the curb stop and the water meter to remain in place during construction and a specified amount of time beyond project completion. In this case, the Department project would replace the impacted service lines from the water main to the ROW. If this is the alternative that the municipality pursues, it is imperative that this be identified as early in the design process as possible as it requires a submittal from the Water Authority to EGLE at least 90 days before project turn-in (Mich. Admin. Code R. 325.10303). This application, subsequent requests for information, and public hearings where required are to be coordinated and led by the municipality.

9.02.02 Private Utility Relocation Policy

(revised 7-25-2022)

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

Private utilities may be located within trunkline ROW by permit issued by the Department pursuant to Public Act 368 of 1925. If conflicts between private utilities and a trunkline project exist, relocation or adjustment of the utility is at the utility company's expense. However, if a utility company has the right of occupancy in its existing location, they may meet the eligibility requirements for reimbursement.

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9.02.03 Including Non-Municipal Utility Work in Contracts

(revised 7-25-2022)

All non-municipal utility work including in contracts must be referred to the Development Services Division's [Utility Coordination and Permits Section](#).

9.02.03A General

Utility companies (excluding municipalities) occupying trunkline ROW by virtue of Public Act 368 of 1925 and the Department's Utility Accommodation Policy are subject to relocating their facilities at their own expense if a conflict exists. If during the preliminary design and utility coordination meetings it is determined that the Department can adjust its plans to 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 project is not compromised. If the utility company's facilities are located in the ROW 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 Development Services Division's [Utility Coordination and Permits Section](#).

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 project, which requires a Special Provision detailing the work to be included 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; this work would still be charged to the utility.

9.02.03B Procedures

The following procedure shall be used when work on behalf of a non-municipal utility is performed by a Department contractor during construction. Upon a mutual agreement between a utility and the Department, work items are incorporated in Department projects and charged to the utility.

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

Region/TSC Utility Coordinator Responsibility

1. Meet with 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:
 - a. Proposed construction schedule.
 - b. Type of work required.
 - c. Plan completion date.

Project Manager Responsibility

2. Ensure the agreed upon utility work is included in the plans and contract documents.
3. Complete Utility Charge Estimate ([Form 0223](#)).

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Note: When the total estimated cost of the utility work is less than \$1,000, the Department shall not charge the utility, and simply incorporate the work into the project. If a pay item(s) is not federally participating, it shall be funded 100% by the Department.

Note: Contact Bridge Field Services for asbestos removal and disposal estimates.

4. Send [Form 0223](#) and any plan sheets that indicate the utility work to the Region/TSC Utility Coordinator if the total estimated cost of the utility work is greater than \$1,000 and less than \$100,000.

Note: For costs greater than \$100,000, an individual agreement shall be required. The Project Manager shall contact the Development Services Division's [Utility Coordination and Permits Section](#) to initiate this request.

5. Receive copy of [Form 0223](#) and Utility Approval Letter or notification of utility denial from Region/TSC Utility Coordinator.
6. Develop a special provision that covers all work for the utility, except for asbestos removal and disposal as noted. The pay item shall be established as a lump sum with an established maximum based on the line titled "Maximum Contract Bid Amount (125% of Subtotal)" on [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, a special provision is required. 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.

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9.03 DESIGN GUIDES

9.03.01 Utility Poles and Light Standards

(revised 1-23-2023)

These guidelines apply to the location of utility poles and light standards on free access roadway construction projects and all trunkline, utility, and roadway lighting construction. 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 dependent on a concentration of fixed-object crashes or the clear potential for crashes.

When placed within trunkline ROW, light standards and utility poles should be located to provide a safe recovery area for motorists.

9.03.01A General Considerations

Individual cases may arise that require special treatment such as: traffic signal installations; locations demonstrating fixed-object crash patterns; and locations with unique design problems, sight distance restrictions, higher multi-modal activity, or unique environmental conditions.

Certain trunkline 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 locations 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 and outside of the deflection zone of the guardrail/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.

9.03.01B Authorization

The Development Services Division processes permit applications to place light standards or utility poles. These applications will be made on forms furnished by the Department and shall be accompanied by a sketch showing the proposed locations in relation to the pavement edge or curb face and ROW and should also include the posted speed limits and the widths and locations of any sidewalks.

9.03.01C Clarifications of Terms Used in Guidelines

The placement of light standards and utility poles includes all related appurtenances.

All lateral distances are measured from traffic side of the utility pole or light standard to lane edge or curb face.

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9.03.01D 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 or C (as specified on Standard Plan R-30-Series) or their equivalent, light standards and utility poles should be a minimum of six feet from the back of curb.
 - b. In areas with curb types B or D or their equivalent, light standards and utility poles should be a minimum of 15 feet from the edge of pavement
 - c. In Central Business District areas with curb types F or C or equivalent and continuous sidewalk between the curb and buildings, light standards and utility poles may be placed two feet from the back of curb.
 - d. Where pedestrian and bicycle traffic will take place on sidewalks or side paths 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.

SPEED LIMIT mph	LATERAL OFFSET (from travelled way) feet
35	18
45	20
50	25
55	30

These lateral offsets should be increased for steeper slopes and for horizontal curves.

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).

9.03.01E Light Standard Details

All light standards must be detailed on the design plans. Department details for light standards (non-frangible base and frangible base) and light standards assemblies are available by contacting the Municipal Utility Design Staff. Shop drawings and design calculations for all light standards are to be submitted to the Municipal Utility Design Staff and the Operations Field Services Division's Structural Fabrication Unit for review and subsequent approval by the Project Manager. This applies to all light standards and details other than those developed and provided by the Department.

Any light standard foundation(s), light standard(s), or portions thereof considered for salvage and reuse must first be inspected by the Structural Fabrication Unit during the planning or design stage of the project. Contact the Structural Fabrication Engineer to arrange for

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inspection.

9.03.02 Municipal Utility Alterations and Notification of Utility Design Units

(revised 7-25-2022)

9.03.02A Procedure

This procedure is to be followed whenever municipal utility alterations occur on a project and *after* the Utility Coordination Meeting (Refer to [Chapter 14](#) Section 14.26)

Municipal Utility Design Staff/Consultant Responsibility

1. If utility relocation is part of the Department contract:
 - a. Prepare plans to include the utility alteration in the Department contract (Begin PPD Task 3670).
 - b. Send plans and specifications to the affected municipality for comments.
 - c. Once municipality approves utility plans, submit plans, specifications, and estimates to the Project Manager for incorporation into the plans to be reviewed during the Final Project Coordination meeting.
 - d. Address Final Project Coordination Meeting comments and resubmit to the Project Manager and municipality.
 - e. Complete all certification acceptance documents.
 - f. If requested, assist the municipality in filling out the required permits for the project. However, all permits required by EGLE must be submitted by the facility owner.
 - g. Submit copies of municipal plans, special provisions, specifications, and draft permits (if applicable) to the municipality.

9.03.03 Utilities on Plans

(revised 7-25-2022)

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. Ensure the following note is placed on the plans:

Contact MISS DIG System, Inc. for the protection of underground utilities and in conformance with MCL 460.721 et seq, by phone at 811 or 800-482-7171 or via the web at either elocate.missdig.org for single address or rte.missdig.org, a minimum of 3 working days prior to excavating, excluding weekends and holidays.

Additionally, label underground utility lines that are no longer in use, or are to be abandoned, as "UTILITY LINE OUT-OF-SERVICE" on the plans. Include the following note for underground utilities in the note sheet:

Plan information indicates an existing underground utility is or may 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.

Refer to Section 1805.02 of the Utility Coordination Manual.

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9.04 MISCELLANEOUS

9.04.01 Utility Trenches

(revised 7-25-2022)

Utility trenches for buried utilities are detailed on Standard Plan R-83-Series. 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 as defined by Department pavement design guidelines. 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 thicknesses but should be as similar as possible and maintain structural equivalency to the existing pavement section on either side. Contact the Department Region Soils Engineer for current pavement design guidance and assistance.

9.04.02 Deleted

Section deleted.

9.04.03 Permit Applications

(revised 7-25-2022)

Municipalities and private corporate utilities may require permits or other approvals for utility alterations or the installation of new utility facilities. Coordination with the Municipal Utility Design Staff, the Development Services Division's [Utility Coordination and Permits Section](#), and the Region/TSC Utility Coordinator is needed to determine the current requirements for permits and approvals. Refer to [Chapter 14](#).

9.04.04 Temporary Utility Hook-Ups

(revised 7-25-2022)

Occasionally a project requires utility services for contractor operations (e.g., electrical power feed on a rest area or pumphouse project). 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 Municipal Utility Design Staff will contact the utility company for all necessary information. When other utility services are required, contact with the utility company is made through the Region/TSC Utility Coordinator.

9.04.05 Water Main Appurtenances

Adjustments and relocations of fire hydrants, valve boxes, water manholes, water shutoffs, and service connectors require coordination with the Municipal Utility Design Staff.

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9.04.06 Gas Main Relocation Policy

(revised 7-25-2022)

The following policy governs the relocation of gas mains in Department 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. The maintenance records furnished by the gas companies will be reviewed by the Region/TSC Utility Coordinator, and if the report indicates there have been no repairs in the five preceding years, the gas main may remain.
2. Excluding cast iron, 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 easements.

Only extenuating circumstances will warrant modification from the above policy. Contact the Development Services Division's [Utility Coordination and Permits Section Manager](#).

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

9.04.07 Sanitary Sewers

(revised 7-25-2022)

Existing combined sanitary and storm sewers should not be used for drainage purposes on a new roadway or improvement project.

9.04.08 Sanitary Sewer Service Leads

(revised 7-25-2022)

On projects that include sanitary sewer relocation, continuity of existing service leads must be addressed. This may entail reconstructing the lead, bulkheading and abandoning the lead, or just bulkheading the lead. Approval for abandonment of an existing sanitary service must be approved by the municipality.

9.04.09 Subsurface Utility Engineering (SUE)

(revised 7-25-2022)

SUE is a branch of engineering practices that manages risks associated with utility mapping, utility coordination, utility relocation design and coordination, utility condition assessment, communication of utility data, utility relocation cost estimates, implementation of utility accommodation policies, and utility design. [American Society of Civil Engineers (ASCE) Standard 38-02]

This section is not intended to be an all-encompassing document or to replace sound engineering judgment.

Funding for SUE-contracted services is typically derived from the project's Preliminary Engineering (PE) phase. An evaluation on the merits of applying SUE should be done during the project's scoping or design phase so that appropriate funding may be allocated. The earlier SUE services are identified, the better they can be coordinated during the project's PE phase.

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If the need for SUE-contracted services is determined prior to the development of the design scope of work, SUE services should 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 will enhance coordination of these functions during the project's design phase.

All SUE providers shall be selected from the Department's SUE prequalification list.

The following guidelines provide items to consider when determining whether to use SUE for a project. It is not all inclusive.

- Impact of conflicts with unknown subsurface utilities during construction.
- Likelihood that inaccurately-located subsurface utilities would delay the project's completion schedule and increase contractor costs.
- Critical nature of project progress schedule and/or completion date.
- Safety risks involved with the subsurface utilities present on the project.
- Type and quantity of subsurface utilities present.

SUE may be applied to varying degrees on a project depending on the situation. These degrees are denoted as Utility Quality Levels. There are four Utility Quality Levels that represent the professional opinion of the quality and reliability of utility information based on different methods of data collection and interpretation. (ASCE Standard 38-02)

A project may include one or multiple utility quality levels depending on the risk factor(s) associated with each subsurface utility. Subsurface utility data evaluation is an important part of the utility coordination and SUE process.

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 Department construction projects. Both involve contacting utility owners and obtaining available utility records. They may also include a site visit to survey visible surface features 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 well known, and there is limited risk in only using available utility records.

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 incorporated into plan documents. (ASCE Standard 38-02)

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Utility Quality Level B, also referred to as “designating,” involves the horizontal mapping of subsurface utilities to a projects survey control. Obtaining Utility Quality Level B information is desired when the PM is risk-averse. Utility Quality Level B should be considered for subsurface utilities that have discrepancies or may impact the project if not in the exact position shown. Once Utility Quality Level B information is obtained, it is compared with the project plans to identify conflicts. Obtaining Utility Quality Level B information shall be considered when:

- Discrepancies exist between the 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 inaccurately represented on the records.
- Inaccurate horizontal locations received from utility records may cause the project to miss a critical completion date.
- It is suspected that there are more utilities in the project limits than shown and/or received from utility record.
- 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-inch) 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 (e.g., air-based vacuum excavation) to expose the subsurface utility and obtain its precise horizontal and vertical position. Obtaining Utility Quality Level A information shall be considered when:

- A subsurface utility could have a major impact on the project and knowing its exact position is critical.
- Precise vertical location of subsurface utilities is critical to a design feature of the project. This may occur when modifying a design 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 utility vertical elevations could be inaccurate.
- A delay, based on vertical location received from utility records, may cause the project to miss a critical completion date.

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9.04.10 Lighting Project - Energy Rebate Procedure

(added 2-16-2016)

Most major energy companies (e.g. 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 Municipal Utility Design Staff if this information is not found or is unclear.

The amount of the rebate is based on the energy reduction percentage by converting existing lighting fixtures to more efficient ones. 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 Department 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 the Department.

When conversion of lighting fixtures is performed by Department forces, the request to the energy company for an incentive rebate is made by the design engineer (either the Department 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 Department 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, the Department receives the rebate incentive check from the utility company. Forward all rebate checks to the statewide electrical engineer for processing.

9.05 DELETED

Section deleted.