

Guidance to Applicants and Consultants Regarding Alternative Justifiable Expenditures (AJE)

I. Introduction

The Alternative Justifiable Expenditure (AJE) methodology is used for a **Multi-Purpose Project** where there is a physical overlap between eligible and ineligible components of a proposed project. The AJE method is a standard accounting technique that computes the eligibility percentage of a Multi-Purpose Project by assigning construction contract line item quantities to specific cost categories and by estimating the costs of two theoretical single purpose projects.

The Revolving Loan Section (RLS) project managers use the AJE-derived eligibility percentage (AJE percent) to identify eligible construction amounts and to determine the eligible portions of the non-construction costs such as engineering (a complete list begins on Page 4). The tasks associated with creating an AJE are completed prior to loan approval and are intended to assess the limits of loan participation for eligible construction activities. Because the AJE will provide an eligibility percentage, consultants do not have to make artificial distinctions in tracking their time. The AJE methodology is an established and standard accounting technique.

A. SRF Background

Section 212 of the Clean Water Act allows Michigan to provide State Revolving Fund loan (SRF) assistance for the correction of combined sewer overflows but **precludes funding** for **storm water collection** and **transportation**. When a municipality proposes to separate existing combined sewers through the construction of new storm sewers, the proposed project may also provide non-pollution control benefits, such as **additional storm water transportation capacity**. Any portion of a project, which is not directly related to water pollution abatement, is ineligible for SRF assistance.

In these cases, the AJE methodology will be used to identify and separately account for pollution control and non-pollution control costs, and to arrive at a percentage of the construction costs that can be attributed to pollution abatement. While this guidance is targeted towards storm sewer construction, the AJE may also apply in other situations, such as the concurrent construction of new water mains with sewers.

The first factor affecting the eligibility of storm sewers is cost-effectiveness. The construction of storm sewers must be the cost-effective method to separate the existing combined sewers. After cost-effectiveness is established, the remaining factor affecting eligibility is the diameter of the proposed storm sewers. Generally, when a proposed storm sewer will be the same diameter as the diameter of the existing combined sewer, then that section of storm sewer will be 100 percent eligible for SRF assistance. The disconnection of catch basins from the existing combined sewer and their reconnection to the new storm sewer will also be 100 percent eligible. However, if a section of new storm sewer will be sized to transport additional storm water, beyond what could be handled by the existing combined sewer; then the construction of that storm sewer and any associated collection or discharge facilities will only be partially eligible for SRF assistance. The eligibility of those facilities will be based on the percentage derived from the AJE method.

B. DWRF Background

Some projects proposed for DWRF funding include work, such as the full-width repaving of streets, which is over and above what is necessary to complete the needed water system improvements. The AJE methodology is used for such a multi-purpose project where there is a physical overlap between eligible and ineligible project components. Since savings are realized when the two overlapping single purpose projects are constructed simultaneously, the AJE process serves to divide the cost savings between the two projects so that the maximum allowable DWRF funding can be provided for your multi-purpose project.

II. Contents of an AJE

The AJE analysis will consist of two parts.

- A. First, the estimated quantity and cost of each construction line item in the bid proposal of the Multi-Purpose Project must be assigned to one or more of the following cost categories:

Specific Pollution Control (SRF Only) – a cost item that can be attributed entirely to SRF eligible water pollution control;

Specific Water (DWRF Only) – a cost item that can be attributed entirely to DWRF eligible water improvements,

Specific Other Cost – a cost item that can be attributed entirely to a benefit other than water pollution control (for SRF projects only), or the drinking water eligible water improvements (for DWRF projects only); or

Joint – a cost item that is shared between both pollution control (SRF only), or eligible water-related work (DWRF only) and nonpollution control (“other” improvements), and, therefore, cannot be attributed exclusively to either benefit.

Note that the total costs of the above categories must be equal to the total cost of the Multi-Purpose Project.

- B. The second part of an AJE consists of estimating costs for two theoretical projects; the “Single Purpose Pollution Control Project” (for the SRF) or the “Single Purpose Water Project” (for the DWRF), and the “Single Purpose Other Project”. These theoretical projects are developed for cost comparison purposes and as elements of the AJE computation.

The **Cost-effective Single Purpose Pollution Control** project (SRF only) is designed to provide only the water pollution control benefits of the proposed project. For example, it could include the construction of new storm sewers to accomplish combined sewer separation that will provide storm water transportation capacity no greater than the capacity of the existing combined sewer, as well as, removal of existing inflow sources (disconnection of drains or catch basins from a combined sewer). See Attachment 1 for more examples.

The **Cost-effective Single Purpose Water** project (DWRF only) is designed to provide only the water-related benefits attributable to the proposed Multi-Purpose Project. See Attachment 2 for examples.

The **Single Purpose Other** project is designed to provide only the ineligible benefits of the proposed project. In the SRF, for example, it might include the construction of new storm sewers sized to provide only the additional storm water transportation capacity that the proposed Multi-Purpose Project provides in excess of the cost-effective Single Purpose Pollution Control project. In the DWRP, it might include the construction of a full-width road replacement on a street or avenue that is only minimally impacted by eligible watermain construction. Attachments 1 and 2 show examples of this category.

Note that the costs of the two theoretical single purpose projects, when added together, must always exceed the total cost of the Multi-Purpose Project. If they do not, then there is either an error in the preparation of the AJE analysis or the Multi-Purpose Project is not a cost-effective design.

The total estimated costs for each theoretical project and each cost category of the proposed Multi-Purpose Project are used in the AJE formula to calculate the portion of the project that is eligible for SRF or DWRP assistance. That amount is then divided by the total construction cost of the proposed Multi-Purpose Project to derive the AJE percentage.

III. Preparation of an AJE Analysis

We strongly urge applicants and their consultants to meet with their RLS project manager before starting the preparation of an AJE analysis. The individual(s) responsible for preparing the AJE should become familiar with this guidance before a draft is submitted.

A. Draft AJE

A draft AJE analysis based on estimated construction costs shall be developed and submitted to your RLS project manager in accordance with the negotiated project milestone schedule. Submittal of the draft AJE analysis will usually coincide with the submittal of the final plans and specifications. The final submittal of plans and specifications will typically occur soon after the engineer has completed quantity take-off measurements for the bid proposal in the contract documents.

If the Multi-Purpose Project is divided into more than one construction contract, a separate AJE analysis will need to be performed and submitted for each contract.

A hard copy of all AJE documents is required, and AJEs will not be approved unless hard copies are provided with sufficient timeliness for DEQ review.

The draft AJE must include a preliminary AJE calculation based on the engineer's cost estimates from the design plans and bid proposal. In addition to a sheet-by-sheet breakdown consistent with the plan drawings, the applicant may need to provide a schematic drawing or street map depicting the two theoretical Single Purpose Projects and the Multi-Purpose Project that identifies routing and sizes of utilities, and cross-section diagrams of road work.

The draft AJE analysis will be reviewed by your RLS project manager for completeness, appropriateness of the cost assignments, correct application of the AJE formula, etc. Your RLS project manager will provide you with comments on the draft AJE, in accordance with the negotiated milestone schedule, and you will be required to modify the draft AJE based on those comments. A second meeting, and/or a second

draft AJE may have to be submitted for review and comment prior to the preparation of a final version.

B. Final (As-bid) AJE

After bids have been opened and the successful bidders identified, the AJE percentage must be recalculated based on as-bid quantities and unit prices. Modifications may also be required based on approved addenda to the plans and specifications, or as a result of errors discovered by you or your RLS project manager. The final AJE calculations and spreadsheets must be submitted no later than the quarterly due date for the SRF/DWRF Application Part III (Bid Data), or, if other arrangements are made, in accordance with the negotiated milestone schedule. If more than one construction contract is subject to an AJE analysis, the calculations for each separate contract will be combined to generate a single blended AJE percentage applicable to non-construction line items discussed below (construction costs and change orders are prorated by the specific AJE percentage developed for the associated construction contract).

The “final AJE” shall refer to the AJE that was approved for use by the DEQ and utilized for preparing the Order of Approval (OOA).

Current policy does not allow pre-OOA change orders to be included in the OOA loan total. Therefore, substitutions will be addressed as new items and will not impact the AJE. Details of how a substitution in a change order is reviewed are in the “Change Order Review” subsection of this document.

C. Determining the Eligible Loan Amount

The final (as-bid) AJE percentage will be applied to line item costs contained in the loan as follows:

Costs prorated by the AJE percentage:

- Construction
- Design and Construction Engineering

Costs not prorated by the AJE percentage:

- Bid Advertisements
- Bond Advertisement/Referendum
- Capitalized Interest Costs
- Municipal Revenue Systems/Sewer Use Ordinance Development

The following items may be prorated by the AJE percentage, depending on the nature of the cost:

- Administrative
- Applicant Staff Construction
- Bond /Financial Consultant
- Equipment Cost
- Land-Related Costs
- Legal Costs
- Planning
- Relocation Expenses
- Small Purchase Construction

Generally, services that encompass the full range of a Multi-Purpose Project will be prorated. Services that are confined to the SRF or DWRP project only, and can be separately tracked and invoiced from ineligible costs, will not be prorated. Typically, services provided by the bond attorney and financial advisor are handled in this manner.

Questions about whether the AJE percentage applies to a specific line item should be directed to the RLS project manager.

IV. AJE/Eligibility Procedures Following Loan Award

A. Loan Disbursement Procedures

Since loan disbursements can be approved only for SRF-eligible (if applicable), or DWRP-eligible (if applicable) project costs, the AJE percentage must be applied to the appropriate line items **prior to submittal of any disbursement request**. The RLS project manager will review the disbursement requests to verify that the correct eligibility percentage has been applied to the appropriate line items prior to approval for payment.

B. Change Order Review

Construction contract change orders will be prorated by the AJE percentage when appropriate, depending on the nature of the work item(s) involved. Change order review and approval correspondence will include specific references to AJE percentages used whenever applicable. The total eligibility of a change order will depend on the eligibility of each individual line item of the change order and will be determined based on the following:

1. Bid Items Included in the Awarded Bid

An “original bid item” is a construction line item specified in the approved bidding documents and final AJE. If the line item quantity is increased or decreased due to as-built adjustments constructed within the original project scope, then the associated cost is prorated by the approved AJE percentage (the approved percentage for the specific contract in question – do not apply a blended percentage to a change order when there are multiple construction contracts). An original bid item that is being substituted or replaced for the same scope of purpose is calculated in two steps. The deduction is prorated by the approved AJE percentage, but the addition of the substituted quantity is considered as a new item and is reviewed based on its own merits, in accordance with the guidance “New Line Items,” in the following section.

A change order that adjusts an original line item that is being adjusted due to construction that was not included in the scope of the loan (e.g., a sewer or watermain extension) will be evaluated on its own merits. If an original line item quantity is being increased in a change order because the intended use is outside the scope of the original project plan, then the bid item is considered a “new” item and should be addressed in accordance with the guidance, “New Line Items.”

2. New Line Items.

“New item” or “new work” is defined as:

- a) construction that was not specified in the final AJE, or
- b) an addition which is a direct substitution for an original line item that is being deducted, or
- c) an original bid item that was in the final AJE but is being utilized for a different location or purpose than originally specified. For example, a DWRP project may have included 8-inch water main, but an extension of this item down a street that was not specified in the original project plan makes it a “new” item of work. An item can also be considered “new” even if it serves the same purpose as the original item but was not included in the final AJE analysis. For example, if one class of sewer or water main is replaced by another type that was not specified in the approved construction contract (even if it is the same size and length as the original item), then this change will be handled as a “new item.” The deduction of the original bid item will be prorated by the AJE percentage, but the new item’s eligibility will be reviewed on its own merits.

New items added by change order will be evaluated on their own merits, meaning they could be 100 percent eligible, zero percent eligible, or eligible at the AJE percentage.

The following guidelines have been developed to aid in determining the appropriate percentage for specific change order “new line items.”

a. One Hundred Percent Eligible

If a specific quantity of an item is added to the executed contract and it is found to be within the scope of the plan and entirely necessary to complete the pollution control (SRF) or water (DWRP) portion of the project, then the item is 100 percent eligible. For example, a valve might be added to a DWRP project, the need for which had been overlooked during the bidding phase.

b. Zero Percent Eligible (Ineligible)

A new contract item is 100 percent ineligible when the entire quantity is outside the scope of the SRF (or DWRP) plan with no physical overlap with eligible work. If the item had been included in the original AJE, it would have been fully allotted to the ineligible “Specific Purpose Other” Project. An example of this situation is the addition of sidewalk or parking lot construction that is located outside of the footprint of a watermain or sewer trench and which is also outside of the original project scope.

c. Prorated by the AJE Percentage

The third commonly seen change order “new item” is the addition of an item that has a combined purpose of being partially necessary for pollution control (SRF), or water system upgrade (DWRP), as well as providing other benefits in a way that is physically difficult or impossible to measure separately. Various types of street restoration could fall into this category.

3. Balancing Change Order Procedures

The approved AJE percentage will be applied by the DEQ to final balancing change order adjustments when all of the line items being balanced are original line items and not part of an extension of project scope. If the final balancing change order contains a combination of original and “new line items,” then the AJE percentage is applied to the original bid items and the new line items will be evaluated based on their own merits.

4. AJE Usage After the Loan is Awarded

Once an AJE is approved, it is not recalculated. During the loan administrative closeout/final accounting, a construction ratio using the eligible portion of the original contract price and the subsequent change orders is calculated. This ratio is then used to prorate the final costs of the loan, where appropriate, such as engineering.

5. Project Completion

The final eligible construction amount is the sum of the eligible construction amount (from the OOA), added to the eligible costs of subsequent change orders. Change orders almost always include “new line items,” and because new line items are reviewed on their own merits, the final eligibility ratio is almost always different than the original AJE percentage.

Your RLS project manager will review all final project cost documentation and ensure that the construction eligibility ratio is applied to all appropriate line items for a determination of the final loan amount.

V. Eligibility Issues, Common Errors, and Special Cases

A. Eligibility Reminders

1. DWRP

It is important to note that, for DWRP loan projects, the DEQ will not approve water mains for funding that are larger in diameter than the pipe size required to supply peak 20-year demands (as documented in a Project Plan and Reliability Study), or which are designed “primarily for growth” or “primarily for fire protection.” Such water mains, if constructed, are entirely ineligible for DWRP participation. Thus, there will never be a DWRP project in which a water main is “partially eligible” (i.e., a Joint Costs item in an AJE analysis). Water mains will always be 100 percent or zero percent eligible depending on whether they are needed to solve a documented drinking water quality problem or to maintain compliance with the Safe Drinking Water Act. The same logic applies to other drinking water facilities bid items and appurtenances.

2. SRF

Section 212 of the Clean Water Act allows Michigan to provide SRF assistance for the correction of combined sewer overflows but precludes funding for the upsizing or upgrading of storm water collection and its transportation. When a municipality proposes to separate existing combined sewers through the construction of new storm sewers, the proposed project may also provide nonpollution control benefits,

such as additional storm water transportation capacity. Any portion of a project, which is not directly related to water pollution, is ineligible for SRF assistance.

The first factor affecting the eligibility of storm sewers is cost-effectiveness. The construction of storm sewers must be the cost-effective method to separate the existing combined sewers. After cost-effectiveness is established, the remaining factor affecting eligibility is the size of the proposed storm sewers. Generally, when a proposed storm sewer will be the same size as the existing combined sewer, that section of storm sewer will be 100 percent eligible for SRF assistance. The disconnection of catch basins from the existing combined sewer and their reconnection to the new storm sewer will also be 100 percent eligible. However, if a section of new storm sewer will be sized to transport additional storm water, beyond what could be handled by the existing combined sewer, then the construction of that storm sewer is a "joint-cost" and any associated collection or discharge facilities will only be partially eligible for SRF assistance. The eligibility of those sections will be based on the percentage derived from the AJE method.

New storm sewers of 12 inches in diameter or smaller (used for combined sewer separation) will not be subject to AJE proration. Only storm sewers larger than the corresponding existing combined sewer, and larger than 12 inches in diameter, will be subject to proration with the AJE.

B. Street Restoration

Street restoration eligibility is most often impacted by trench depth, which is wider for SRF projects than it is for DWRP projects due to the larger diameter and deeper sewer construction relative to the shallower installation depths and smaller diameter of watermain construction. Therefore, a different set of guidelines has been established for each loan program. This section of the guidance addresses the theoretical project analysis portion of the AJE, and, therefore, it should be noted that for the proposed multi-purpose project, the road restoration quantities should be classified as "Joint."

1. Single Purpose Water and Pollution Control Project Quantity Estimates

a. DWRP Only (Single Purpose Water Project Quantity Estimates)

1. When a trench box can be used for eligible underground installations, the DWRP-eligible width of street restoration is the trench width plus one foot of overlap on each side of the trench.
2. In cases where a sloped trench must be used, the following rules-of-thumb apply for paved roads:
 - If the eligible water main is located at or next to the curb, then restoration of up to one-third of the width of the impacted lane is eligible* for DWRP funding.
 - If the eligible water main is located in or near the middle of a traffic lane, then restoration of the width of the impacted lane is eligible* for DWRP funding.

- If the eligible water main is located near the edge of a lane (and not adjacent to a curb), then restoration of the impacted lane and up to one-third of the width of the adjacent lane is eligible* for DWRP funding.

Note: * *Exceptions will be considered due to service lead construction, deeper than usual trench depth, skewed/non-parallel trench direction, or other unexpected field conditions that may require a different calculation of the eligible restoration quantities.*

b. SRF Only (Single Purpose Pollution Control Project Quantity Estimates)

In the SRF, the eligible pollution control portion of a multi-purpose project, which becomes part of the theoretical single purpose project in the AJE, will typically be either sanitary or storm sewer (s), or a combination of both (*caution: depending on their function, however, sewers can also be ineligible and part of the single purpose other project*). To compute reasonable estimates of the road restoration items and quantities needed to construct only the single purpose pollution project, the following guidelines can be used as a starting point. Open cut construction methods are assumed, with a “V” shaped trench. Estimates are likely to vary based on the actual underground and surface field conditions, but need to be justified accordingly.

- If the eligible sewer is located at or next to the street curb, restoration of at least one-third of the width of the adjacent traffic lane can be justified, with a greater impact considered for large-diameter sewers.
- If the eligible sewer is located in or near the middle of a traffic lane, one can typically assume that the entire lane can be justified for the restoration estimate, with some exceptions for wider streets where a smaller-diameter sewer may only impact ½ or 2/3 of the single-lane roadway.
- If the eligible sewer is located in the center of a 2-lane road, a smaller-diameter sewer can usually be assumed to impact the street restoration of up to 2/3 of the full road width, whereas larger-diameter sewers will normally disrupt the full width of the roadway. This generality can be adapted to 2 adjacent lanes of a 3 or more lane roadway as necessary.

While exceptions may apply, such as slope and depth considerations, in general smaller-diameter sewers are defined as those less than 24 inches, whereas sewers 24 inches or greater will be considered to be large-diameter.

Note: *Engineers will be allowed leeway in establishing estimates that include restoration necessary due to lateral service leads, catch basin connections, or from other known construction utility conflicts causing impacts outside the boundaries of the main sewer installation. These allowances need to be accounted for when justifying AJE calculations.*

C. Determining Theoretical Single Purpose Other Project Quantity Estimates

a. DWRP Only

A frequent concern regarding eligible street restoration involves determining what

the proper Theoretical Single Purpose Other project compared to what the full-width street restorations will be. In some cases, the Theoretical Single Purpose Other project is to be composed of only those items that are not part of the Theoretical Single Purpose Water Project (i.e., the additional quantity of paving); in other cases, the Theoretical Single Purpose Other project must be the comparable “stand-alone” project (i.e., the milling and full-width restoration of streets). The following rules-of-thumb apply for determining what is the proper Theoretical Single Purpose Other project to use in preparing your AJE:

- If the eligible construction will disturb one-third or less of the total width of a three- or four-lane road, then the Theoretical Single Purpose Other project will be based on the full-width milling and replacement of the existing pavement.
- If the eligible construction will disturb more than one-third of the total width of a three- or four-lane road, then the Theoretical Single Purpose Other project will include the additional quantity of paving needed to complete full-lane restorations. For example, if approximately 50 percent of a three-lane road is being disturbed (this includes a one-foot overlap of the trench), then two lanes will have been disturbed and the Theoretical Single Purpose Other Project paving quantity would consist of the additional quantity of paving needed to complete a one-lane restoration.
- If the eligible construction will disturb less than one-half of the total width of a two-lane road, then the Theoretical Single Purpose Other project will be based on the full-width milling and replacement of the existing pavement.
- If the eligible construction will disturb one-half or more of the total width of a two-lane road, then the Theoretical Single Purpose Other project will include the additional quantity of paving needed to complete the full-width restoration of the road.

b. SRF Only

In the SRF, the ineligible portion of the multi-purpose project, which combined with a portion of the joint cost items, becomes the theoretical single purpose other project in the AJE, and will often consist of road and utility improvements that are not associated with the eligible pollution control portion. It helps to ask oneself: What is the goal (or scope) that one would be seeking if this project alone were to be constructed? For example, is it to improve the entire road surface? Is it to install a drainage improvement? Is it to install another (unfunded) utility? Is it to do some combination of utility and road improvements, etc.? The answers will dictate the level of road restoration appropriate to estimate for the calculation of the single purpose other project.

To compute reasonable estimates of the road restoration items and quantities needed to construct the single purpose other project, the following guidelines can be used as a starting point. Estimates are likely to vary based on actual underground and surface field conditions, but need to be justified accordingly.

- If the eligible sewer is located at or next to the street curb, restoration estimates of the “other” project should consist of the same amounts needed to complete the multi-purpose project.
- If the eligible sewer is located in or near the middle of a traffic lane,

restoration estimates for the “other” project may consist of either full-width paving/sub-base of the entire street (if that is the goal of the community to have full-width regardless of sewer construction) **or** the additional pavement/sub-base/etc needed **over and above** the sewer zone of impact, **plus** the portion which would partially overlap the sewer trench if constructed as a road project alone.

- If the eligible sewer is located in the center of a 2-lane road, the restoration estimate of the “other” project will typically consist of 1/3 of the full road width **plus** the portion which would partially overlap the sewer trench if constructed as a road project alone. In areas of a proposed contract where a larger-diameter sewer will normally disrupt the full width of the roadway, road restoration for that portion of the project is not a joint cost and there would be no corresponding quantity required for the “other” column of the AJE.

Note: Engineers will be allowed leeway in establishing estimates that include restoration necessary due to lateral service leads, catch basin connections, or from other known construction utility conflicts causing impacts outside the boundaries of the main sewer installation. These allowances need to be accounted for when justifying AJE calculations.

D. Common Errors in the AJE Analysis

One of the most common errors made in preparing an AJE analysis is assigning a given item of the Multi-Purpose Project to the wrong cost category. This error can appear in any number of ways. For example, an item that belongs in the Specific Purpose Pollution Control (SRF only) or the Water Costs category (DWRP only) may be assigned to Specific Purpose Other Costs, or vice versa, or an obvious Joint Costs item may be assigned to either Specific Purpose Pollution Control (SRF only) or Water Costs (DWRP only) or Specific Purpose Other Costs. Sometimes these errors are simply due to an oversight. Other times, these mistakes are made because the individual preparing the AJE does not fully understand how certain items fit into the AJE calculations. In either case, these errors can seriously impact the accuracy of deriving a percentage of eligible costs for a project, and should be corrected whenever found. Ideally, most mistakes will be identified upon review of a draft AJE and corrected on the final version.

Numerous errors in basic arithmetic can also result in an unsatisfactory AJE analysis. This can especially occur when there are multiple contracts or project sub-areas (streets) within one large project. Examples include cases in which the total costs in the three subcategories do not equal the Multi-Purpose Project cost, or where the numbers used in the AJE formula do not match the subtotals on the spreadsheet(s) of the itemized project components for the real or theoretical projects.

Another serious error, mentioned previously, occurs if the costs of the two Theoretical Single Purpose Projects, when added together, are less than the total cost of the Multi-Purpose Project for the overall project and/or for sub-areas of the project. The Multi-Purpose Project must be more cost-effective than the sum of the two Theoretical Single Purpose Projects.

Another serious error can occur if the various items in the AJE do not exactly match the items and quantities on the bid form in the DEQ approved final plans and specifications (including any approved addenda) and, for the final AJE, the unit prices

of the successful low bidder(s). This error can be corrected by comparing the approved bid documents with the AJE to verify that the items match.

Often, inaccurate estimates of quantities and costs for the theoretical Single Purpose Projects are made for those items defined as Joint Costs in the Multi-Purpose Project. For example, when estimating quantities of road restoration items such as bituminous top course, it is not correct to divide the quantity of bituminous by making a predetermined proportional split between the theoretical Single Purpose Pollution Control Project (SRF only) or Single Purpose Water Project (DWRP only) and the theoretical Single Purpose Other Project such that, when these quantities are added together, they exactly equal the quantity of bituminous in the Multi-Purpose Project. This method is likely to result in very inaccurate cost estimates on complex AJE projects. Similarly, it is all too easy to underestimate the costs of various lump sum joint items such as mobilization, traffic control, or restoration in the theoretical single purpose projects. In reality, the costs of lump sum items may not differ much, if at all, between each theoretical project and the Multi-Purpose Project.

Another common mistake is to assign a single item to Joint Costs that, in reality, does not involve an inseparable mix of eligible and ineligible quantities but instead includes measurable (i.e., physically separable) quantities of SRF or DWRP eligible construction and "Specific Other" work. In such cases, the quantities and their associated costs can be segregated into the Specific Purpose Pollution Control (SRF only) or the Specific Purpose Water (DWRP only) and Specific Purpose Other categories, and likewise split amongst the Theoretical Single Purpose Projects.

Finally, a common mistake is made during the administrative completion of the project when determining the specific loan line items for which to apply the final construction percentage. This is primarily a concern for the design engineering line item costs, which are usually incurred prior to the issuance of the OOA, and for which RLS project managers are tempted to apply the original AJE percentage. The final eligibility percentage (derived from the ratio of eligible construction to total construction costs) should be applied to the design engineering line item, even if design engineering costs were completely incurred prior to the issuance of the OOA.

E. Special Cases – Combined SRF/DWRP Projects

Special cases of the AJE analysis occur when an applicant receives funding for the same multi-purpose project from both the SRF and the DWRP.

Sometimes a Multi-Purpose Project will include both DWRP and SRF eligible components, and the municipality will choose to submit an application to both programs on approximately the same schedule (typically, for two loan closings in the same quarter of a given fiscal year). There are some special considerations for a dual project of this type. For example, two AJEs will be required, one for the DWRP project and one for the SRF project. The exclusively SRF eligible components (for example, sewer) are considered "other" costs in the DWRP AJE project. Likewise, the exclusively DWRP-eligible components (for example, water mains) are considered "other" costs in the SRF AJE project. Of course, items such as road removal and resurfacing will often physically overlap both DWRP and SRF work, and will represent "Joint" costs in the AJE calculations for both programs. Applicants and consultants will need to carefully review the AJE calculations for each program to ensure that the combined eligible percentages do not exceed 100 percent. For example, the DWRP AJE might result in a 40 percent eligible project and the SRF AJE might result in a 50 percent eligible project such that the combined eligibility is 90

percent. It is likely that such combined projects will always have some percentage of costs that are entirely ineligible for either the DWRP or the SRF.

As a result, the two percentages from the respective AJEs should not ever equal 100 percent eligibility. Since these multi-purpose combined SRF/DWRP projects can be exceedingly complex, applicants and consultants are encouraged to work extra closely with DEQ staff to help sort out any difficulties that could arise.

VI. AJE Examples

See Attachment 3 for a simplified example of an SRF AJE calculation and the associated cost breakdown.

AJE DEFINITIONS AND ASSIGNMENT OF COSTS STATE REVOLVING FUND (SRF)

Single Purpose Pollution Control Project

Theoretical cost-effective project designed to provide only the pollution control benefits of the proposed multi-purpose project. The project may include:

- a. Construction of a new storm sewer that has capacity equal to the existing combined sewer
- b. Removal of existing public property inflow sources such as catch basin leads that will be disconnected from the combined sewer and reconnected to the new storm sewer

Single Purpose Other Benefit Project

Theoretical cost-effective project designed to provide only the additional nonpollution control benefits of the proposed multi-purpose project. The project may include:

- a. Theoretical storm sewer designed to provide the increased storm water transportation capacity beyond what is provided by the existing combined system
- b. Any additional (new) catch basins
- c. Storm sewers of any size in areas not currently served; and
- d. Construction of new water mains or any other nonpollution related items, if applicable

Multi-Purpose Project

The project as proposed, containing both eligible, partially eligible, and ineligible construction items. It must be more cost-effective than the sum of the two theoretical projects.

NOTE: New storm sewers, of 12 inches in diameter or smaller used for separation, will not be considered joint cost items. Only storm sewers used in separation projects and that are larger diameter than the corresponding existing combined sewer and larger than 12 inches diameter will be considered “oversized” and classified as joint cost items.

1. Specific Pollution Control Costs (ELIGIBLE)

The cost of construction items in the proposed multi-purpose project that only serve pollution control function are in this category. These costs may include any or all of the following:

- a. Storm sewers and associated appurtenances (new outlets, replacement catch basins, etc.) that are not oversized to provide additional storm water transportation capacity, but which function to replace the capacity previously available in the combined sewer.
- b. Sanitary sewers and appurtenances (manholes, stubs, etc.) **not associated with separation** and included as eligible in the approved project plan.
- c. Sanitary sewers used for sewer separation in areas distinct from areas where storm sewers are to be constructed. **Note:** the SRF cannot pay for the cost of **both** new sanitary sewers **and** new storm sewers used for separation in the same street section since this would **NOT** be a cost-effective method of separating the existing combined sewer.

- d. Cost-effective rehabilitation of the existing combined sewer so it can function as a sanitary sewer. **Note:** If the existing combined sewer will serve as a storm sewer, rehabilitation will not be eligible.
- e. Sewer rehabilitation identified in the approved Sewer System Evaluation Study (SSES) as cost-effective and included in the approved project plan.
- f. Restoration of utilities/pipes/street unavoidably disrupted by the construction of storm or sanitary sewers that are entirely eligible.
- g. Bulkheading the existing overflows.

2. **Specific Other Costs (INELIGIBLE)**

Costs of construction items in the proposed multi-purpose project that only serve a nonpollution control function. The following costs are generally included:

- a. Construction of storm sewers in areas not currently served.
- b. Additional catch basins and leads.
- c. New water mains and appurtenances, except if they represent replacement of existing water mains that are disrupted due to eligible storm or sanitary sewer construction.
- d. New or rehabilitated sanitary sewers and appurtenances that are not necessary for combined sewer separation.
- e. New sidewalk or other improvements/utilities not associated with construction of eligible storm or sanitary sewers.

3. **Joint Costs (PARTIALLY ELIGIBLE)**

Costs of construction items in the proposed multi-purpose project that are shared between pollution control and nonpollution control purposes. Items b-h below will normally be considered joint costs because there is usually a physical overlap of pollution related and nonpollution related work. In places where no physical overlap exists, these items will be assigned to specific pollution cost, or specific other cost, as appropriate.

The following costs will generally be included:

- a. Oversized storm sewers and associated appurtenances
- b. Removal of unsuitable soil
- c. Rock excavation
- d. Sand Sub-base
- e. Gravel Base
- f. Curb and gutter
- g. Pavement replacement
- h. Surface restoration
- i. Traffic control
- j. Video taping
- k. Mobilization
- l. Erosion and sedimentation control

Items b-h (or their equivalents in a bid proposal) must be documented with quantity take-offs that clearly show eligible and ineligible areas of work.

AJE DEFINITIONS AND ASSIGNMENT OF COSTS DRINKING WATER REVOLVING FUND (DWRF)

I. Single Purpose Drinking Water Project

The Single Purpose drinking water project is defined as the theoretical cost-effective project designed to provide only the DWRF drinking water improvements of the proposed Multi-Purpose Project. This project will often include the following:

- Construction of water mains
- Construction of necessary appurtenances such as service leads, corporation stops, hydrants, taps, valves, crosses, tees, reducers, sleeves, bends, curb stops, offsets, etc.
- Restoration items necessary to backfill the construction trench and return roads, utilities, lawns, etc., back to their pre-existing, original condition

II. Single Purpose Other Benefit Project

The Single Purpose Other Benefit Project is defined as the theoretical cost-effective project designed to provide only the non-drinking water benefits and/or benefits not eligible for DWRF financing of the Multi-Purpose Project. The project may include any of the following:

- Construction of sanitary sewers and related work such as manholes, sewer laterals, tee/wyes, etc.
- Construction of storm sewers and other drainage improvements such as catch basins, connections, manholes, etc.
- Road and surface restoration items necessary to provide the additional improvements not realized by the Single Purpose Water Project and/or restoration that represent additional improvements over pre-existing field conditions. In certain cases, the road improvements may equal the full quantity of specific work items in the Multi-Purpose Project.
- Construction of drinking water improvements that have been identified as DWRF ineligible.

III. Multi-Purpose Project

The Multi-Purpose Project is defined as the actual project to be built, one that combines overlapping DWRF eligible work with other benefits. It is always more cost-effective than the sum of the Single Purpose Drinking Water and Single Purpose Other Benefit Project cost. Proposal items in the Multi-Purpose Project are each assigned to one of the following categories:

1. Specific Pollution Control Costs (ELIGIBLE)

The cost of construction items in the proposed multi-purpose project that serve only a DWRF eligible drinking water improvements function. Examples are:

- Water main
- Necessary drinking water appurtenances such as water services, corporation stops, hydrants, taps, valves, crosses, tees, reducers, sleeves, bends, curb stops and boxes, offsets, etc.

- Restoration and/or replacement of existing underground utilities and surface features, such as trees, in direct conflict with eligible water improvements

2. **Specific Purpose Other Costs (INELIGIBLE)**

These construction items serve only to provide a DWRF ineligible improvements function. Examples are:

- Ineligible water main improvements or extensions and related ineligible water appurtenances
- Storm sewers and related drainage improvements
- Sanitary sewers and related wastewater improvements
- Other improvements/utilities not necessary to construct the DWRF eligible project such as new sidewalk, new curb and gutter, new driveways, new traffic signals/signs, new landscaping improvements, paving of dirt roads, etc.

3. **Joint Costs (PARTIALLY ELIGIBLE)**

These construction items serve a dual function, providing combined DWRF eligible and DWRF ineligible benefits that cannot be completely and accurately separated on a bid proposal form. The following items will be considered joint costs when there is an actual physical overlap of DWRF eligible related and DWRF ineligible related work. When no physical overlap exists, these items will be assigned to specific pollution cost, or specific other cost, as appropriate. Examples are:

- Aggregate Base
- Bituminous Road Surfacing and/or Concrete Pavement
- Curb and Gutter Replacement
- Detour Signing
- Dust Control (Palliative)
- Mobilization
- Pavement Marking
- Removal of unsuitable soil
- Rock excavation
- Sand Sub-base
- Surface Restoration (lawns, driveways, etc)
- Traffic Control
- Video taping

SRF EXAMPLE
MULTI-PURPOSE PROJECT BREAKDOWN
Actual Project Proposed for Construction

ITEM No.	DESCRIPTION	QUANTITY	UNIT \$	AMOUNT	ASSIGNMENT			JOINT COSTS	SPECIFIC POLLUTION COSTS	SPECIFIC OTHER COSTS
					J	P	O			
1	New 8" Sanitary Sewer	400	\$45.00	\$18,000.00		1		\$0.00	\$18,000.00	\$0.00
2	Existing Combined Sewer Rehab to Sanitary	1200	\$50.00	\$60,000.00		1		\$0.00	\$60,000.00	\$0.00
3	New 15" Storm Sewer	400	\$75.00	\$30,000.00		1		\$0.00	\$30,000.00	\$0.00
4	New 15" Storm Sewer	400	\$75.00	\$30,000.00			1	\$0.00	\$0.00	\$30,000.00
5	New catch Basin	1	\$1,000.00	\$1,000.00			1	\$0.00	\$0.00	\$1,000.00
6	New 21" Storm Sewer	800	\$120.00	\$96,000.00	1			\$96,000.00	\$0.00	\$0.00
TOTALS				\$235,000.00				\$96,000.00	\$108,000.00	\$31,000.00

SINGLE PURPOSE POLLUTION CONTROL PROJECT COST BREAKDOWN

Theoretical project designed to provide on the intended pollution control benefits, e.g. a storm sewer designed for separation with a capacity equal to that of the existing combined sewer.

ITEM NO.	DESCRIPTION	QUANTITY	UNIT \$	AMOUNT
1	New 8" Sanitary Sewer	400	\$45.00	\$18,000.00
2	Existing Combined Sewer Rehab to Sanitary	1200	\$50.00	\$60,000.00
3	New 15" Storm Sewer	400	\$75.00	\$30,000.00
4	New 18" Storm Sewer	800	\$95.00	\$76,000.00
TOTALS				\$184,000.00

SINGLE PURPOSE 'OTHER' BENEFIT PROJECT

Theoretical project designed to provide the "other benefits" that would be provided by the joint project that would not be provided by the single purpose pollution control project (e.g. a storm sewer designed for separation with a capacity equal to the difference between the capacity of the proposed project and the capacity of the existing combined sewer).

ITEM NO.	DESCRIPTION	QUANTITY	UNIT \$	AMOUNT
1	New Catch Basin	1	\$1,000.00	\$ 1,000.00
2	New 10" Storm Sewer	800	\$ 50.00	\$40,000.00
3	New 15" Storm Sewer	400	\$75.00	\$30,000.00
TOTALS				\$71,000.00

AJE CALCULATION FORMULA

<u>LEGEND</u>	<u>ITEM</u>	<u>COST</u>
A	Specific Purpose Pollution Costs	\$108,000.00
B	Specific Purpose Other Costs	\$ 31,000.00
C	Joint Costs	\$ 96,000.00
D	Single Purpose Pollution Costs	\$184,000.00
E	Single Purpose Other Benefit Costs	\$ 71,000.00

$$\text{Eligible Amount} = A + \frac{(D - A)}{(D - A) + (E - B)} * C$$

$$= \$108,000 + \frac{(\$184,000 - \$108,000)}{(\$184,000 - \$108,000) + (\$71,000 - \$31,000)} * \$96,000$$

$$= \$170,897$$

$$\text{Percent Eligible} = \frac{\$170,897}{\$235,000} \text{ or } 72.72\% \text{ of the appropriate project costs} *$$

* Some project line items are not prorated.