



Frequently Asked Questions

Inventory Questions

What is the core asset Inventory module?

The creation of an asset inventory is a primary requirement for most software applications. It is the location where information about a municipality's infrastructure assets is saved. With the saved data various modules of MDW or the modules of 3rd party applications can manipulate the data, perform calculations, display data spatially or perform other functions. MDW differs from other data repositories in that MDW is a web-based non-proprietary application that allows and encourages other applications to read the stored inventory data. The advantages to using MDW are:

1. A single database of information for all asset types, (roads, bridges, sewers, water mains, buildings, land, fleet and so on) eliminating data silos.
2. Confidence that you are viewing the most up-to-date version of the data.
3. With a web-based solution, software updates are available to everyone when released, no need to download a patch.
4. Data is available for all persons, with appropriate security permission, corporation wide.
5. Linking 3rd party software applications to MDW allows you to receive the functionality, generate the reports and outputs you have grown accustomed to while at the same time making the data available for other departments, other applications.

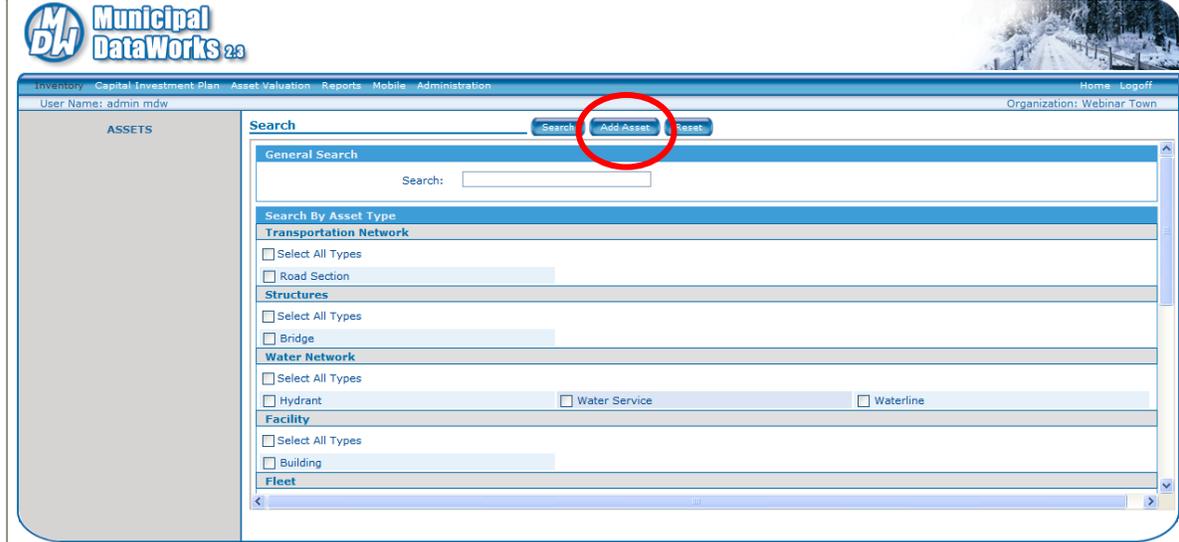
How do I get my paper data into MDW?

Municipalities with data that resides with various staff in different departments in paper files will be required to sit at the keyboard and manually input the data into Municipal DataWorks. On the MDW website (Figure 1), a user will click on the "Add Asset" button on the search, select the type asset to be added on the next page, and then enter the data for that asset. Once the attribute data has been collected and saved asset location can be added, condition and performance values saved and lifecycle events created and relationships to other assets established.

Can data on a excel spreadsheets be bulk loaded into MDW?

Data for all asset types can be bulk loaded into MDW. Templates are available for users to determine the attributes that can be bulk loaded. Caution must be given for attributes in MDW that have multiple choices in a pick list. The value for that attribute on the excel spreadsheet must use the appropriate MDW domain code (example – high class bituminous = domain code HCB). Once the template has been completed with all the data to be bulk loaded a Data Conversion Tool is available to all OGRA member municipalities at no cost to the municipal member to bulk load the template to MDW. PLEASE NOTE: updated data can also be bulk loaded to existing asset records to either supplement the data in the asset record or overwrite the field.

Figure 1



How do I get data from other software applications into MDW?

MDW's Web Services enables access to the MDW database. These services have been specifically designed to allow software providers to link their business solutions with MDW. MDW Web Services enables third-party providers to build custom applications, tools, and services that leverage the MDW asset data.

1. Typical MDW-enabled applications may include asset inspection, work management solutions, asset analysis, GIS and other applications that assist users in managing the assets they are responsible for.
2. Web Services makes MDW your "master file" of asset data, available to other applications, thus ensuring data integrity. With your MDW-enabled application, you can present data in custom ways that best meet your needs, while accessing all the features MDW has to offer.
3. Data from home grown databases or other software can be migrated to MDW. This will require a script to be written that match the fields of information in these home grown databases and software tools with the fields of information in MDW. Scripts are already available to bulk load data residing on several consulting engineer's software tools.

Should I collect detailed data for all asset types?

One essential decision to make in determining how to structure an inventory of infrastructure assets, is what amount of detail to include:

- The more asset details a municipality decides to track, the more complex and costly it will be to manage the data in the database.
- However, without at least some detailed information MDW and other linked software solutions information about rehabilitation needs, capital costs, replacement scheduling, etc would be very limited.

Are there any rules for segmenting linear assets?

There are no hard and fast rules.

1. Tips for segmenting roads are:
 - If the surface type changes;
 - If the geometry changes (4 lane road to a 2 lane road);
 - If the roadside environment changes (urban to rural);
 - If the classification changes (local residential to collector or collector to arterial);
 - If the traffic volume changes significantly (% trucks) and;
 - If the condition of the road surface changes dramatically over an extended length (e.g. >150 meters)
2. Tips for segmenting sewers and watermains are:
 - If the pipe materials changes (concrete to PVC);
 - If the pipe diameter changes;
 - If the flow type changes (residential flows to commercial or sanitary to combined);
 - If the condition changes over an extended length;
 - If the age of the pipe is substantially different

Are there any rules for collecting and storing asset attributes?

Again, there are no hard and fast rules. Municipalities will need to know what data is required for each software application they have linked with MDW. If you are only using the modules of MDW to capitalize and amortize your assets or plan future capital expenditures the attribute data required will vary from municipality to municipality. For example, a municipality with high traffic volume, high speed roads may want to use material type (high class bituminous, low class bituminous, gravel, etc), functional classification (arterial, collector, local, etc), and traffic volume to categorize their road system for the asset valuation module. For other municipalities the attribute material type may be sufficient to categorize your assets. Regardless of your data needs Inventory Manuals have been developed for Transportation Networks, Sewer Networks, Water Networks that define the attribute and set the accuracy required for geometric measurement.

Are there any limits on inputting data into MDW?

Data can be added at any time. If the municipality chooses an incremental implementation of asset management, data can be input or bulk loaded one asset type at a time. If data is added to supplement existing data, that data can be added at any time without interfering with any work underway in the modules of MDW.

Are there any issues with using GIS?

MDW can interface with any Geographic Information System (GIS) software for spatial display of the data. A word of caution: GIS software uses reference points to display the data for a section, if the GIS reference points for the asset do not align with the MDW location information, data may not be displayed properly. Staff should talk to a GIS vendor before heading into the field to collect data. Knowing the GIS reference points in advance may save time and effort in the end.

I currently use GIS, why do I need MDW?

GIS will read data in multiple databases and display that data spatially. MDW stores all asset data in one location allowing the relationship and interdependency of one asset with another to be established. MDW permits and encourages integration of 3rd party software. The advantage of a single database will be realized when other software such as work management, finance management, pavement management and other applications are linked with MDW. Remember whoever controls your data, controls the decision making process.

Can data be collected electronically?

Data can be collected using GPS data collectors, total stations or other electronic devices. MDW Web Services will allow the migration of data to and from these devices. The device supplier will need to write a script to match the fields of information within the device to the fields of information in MDW.

Can multiple location references be stored in MDW?

Each asset type in MDW can store multiple values about an assets location including; the assets X, Y and Z coordinates; linear reference (on Sideroad A, 0.2 km north of the intersection of Sideroad B); location description and street address. All of the above or any of the above can be collected and stored.

Are there any rules for developing asset ID numbers?

Asset ID's are a required field for all assets. Asset ID's can be a numeric value and alpha value or an alpha/numeric value. Asset ID can be the same value as the asset name or independent of the asset name. Here is an example you may want to consider: 10101 is the asset id number for the road section, 10101_SWK_L is the asset id for the sidewalk left of center of a road and 10101_SWK_R is the asset id for the sidewalk right of center, 10101_STM is the asset id for the storm sewer below the road and so on. For the above example to work satisfactorily all assets must have the same start and end points as all other assets identified by the number (in this case 10101). However, sewers and watermains do not always follow the road allowance and may use an easement off of the road allowance or be constructed perpendicular to the road allowance. If that is the case then using the same asset id number for all assets may not be suitable and a unique numbering system for sewers and watermains. Another example could be street lights. There may be several street lights within a single road section. A single asset record could create e.g. Asset ID 10101_SL_L and then provide a count of the number of street lights in that section (providing all street lights are the same type).

Can MDW store picture and video?

Word, excel, PDF and all picture file formats can be stored as an attachment to an asset record or to as an attachment to a lifecycle event. The only file format that is not supported by MDW is video files.

Inspection Module Questions

Why was PCI chosen for pavement condition?

There are objective methods of determining pavement condition. These methods require the use of expensive technology to collect data and therefore are mostly used on high speed, high traffic volume roads. Pavement Condition Index (PCI) is a subjective measurement of pavement condition based on the ride comfort of the road section plus field observations of pavement surface deficiencies noting the severity and density of the deficiency. The PCI method has been used by the Ministry of Transportation (MTO) and municipalities for several years and the methodology is well documented by MTO. OGRA believes that any staff person with proper training can complete a PCI inspection.

How will asset condition be established for assets other than roads and bridges?

Roads and bridges are the only asset types with well-defined condition evaluation methodologies. The determination of whether or not other asset types are in good, fair or poor condition will depend on engineering judgment on whether or not the asset will perform as designed. An engineer would need to determine the performance and material condition requirements for an asset considered to be in good condition or an asset in fair condition requiring repair and/or rehabilitation and those assets in poor condition requiring replacement. Numeric values would be assigned for condition rating and the values stored in MDW.

How often should condition information be updated?

Condition and performance data should be updated at regular intervals. Bridges are the only asset required by regulation to be inspected every two years. Plans should be developed to inspect all other assets at a pre-determined frequency. MDW will store the history of the inspection as a lifecycle event so the rate of deterioration can be monitored. An update to condition and performance data does not affect the data or results in the Asset Valuation module until the next point in time data load.

Can other pavement condition information be collected and stored?

Yes MDW has multiple condition and performance values built into a pick list (Figure 2).

What is the Bridge Inspection module?

The bridge inspection module of MDW is based on the Ontario Structure Inspection Manual (OSIM). OSIM is an element by element inspection of a bridge. MDW uses the inputs from the element by element inspection to calculate a Bridge Condition Index (BCI) and Bridge Sufficiency Index (BSI). The bridge inspection module of MDW is:

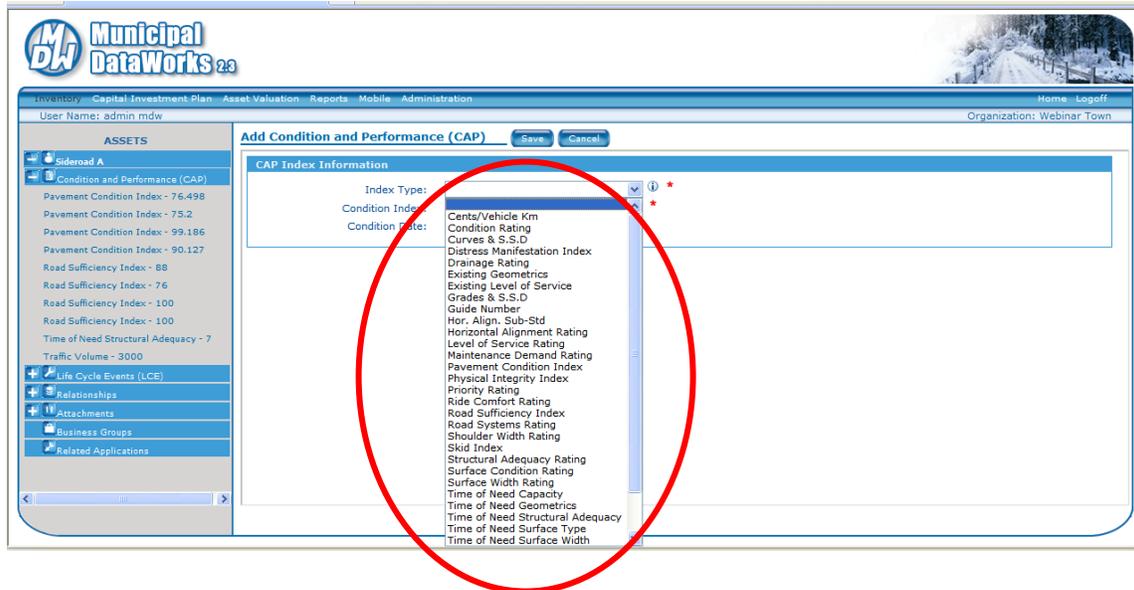
1. Flexible and will allow the structural engineer to adopt as little or as much OSIM detail as he/she requires;
2. Easy to use, once the original element groups and elements are identified subsequent inspections are automatically populated with the original element groups and elements;
3. The module does all the work to calculate the BCI value;
4. The inspection output is stored in MDW as a lifecycle event for that bridge; and
5. The inspection detail is retained until deleted by the user

Do I need to inspect bridges to the same level of detail as OSIM provides?

OSIM provides for the inspection of every element of every bridge. The bridge inspection module of MDW provides for that same detailed inspection and will calculate a Bridge Condition

Index value based on the ratings of each element as excellent, good, fair and poor. The bridge inspection module will also allow the structural engineer to complete a visual overall inspection of a bridge or inspect one or more element groups of a bridge. If the structural engineer does choose to complete an overall inspection the module will not automatically calculate the BCI value. That value must be manually inserted into MDW. The choice is the structural engineers as to how detailed the inspection will be.

Figure 2



General Questions

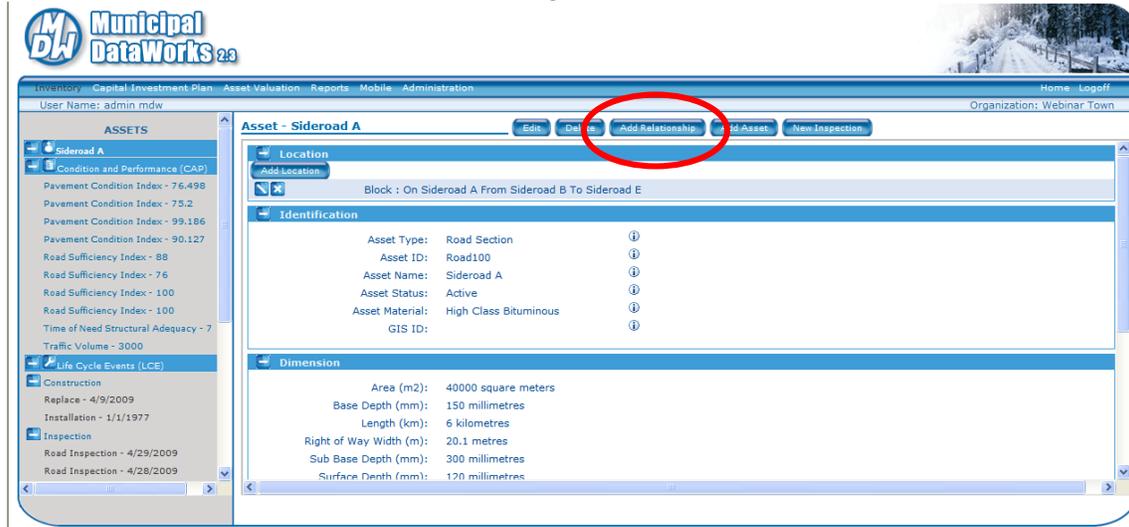
What is a lifecycle event?

Is anything done by a municipality to acquire, maintain, repair, rehabilitate or replace an asset.

How are the relationships to other asset types established?

MDW has the ability to establish relationships (Figure 3) that verify the inter-dependencies of one asset with another. Once the data is collected and asset records created for multiple assets, the relationship to the road for assets over, under and beside the road can be established. Caution must be taken when establishing relationships to assets as MDW will allow an asset that physically exists on Main Street to be linked to a road section on Queen Street.

Figure 3



What are Business Groups?

Business groups are a means of managing assets. Business groups allow for the assemblage of assets. Multiple business groups can be established within MDW. Multiple business groups can apply to a single asset. Here are some examples:

1. A councillor elected to Ward 1 may want to know what assets the municipality has in Ward 1. A business group call Ward 1 could be created for all roads, sewers, watermains, bridges, culverts and so on within the Ward.
2. A patrolperson is responsible for all the assets in Patrol 1. A business group could be created for Patrol 1 that includes all roads, sewers, watermains, bridges, culverts and so on and which may or may not overlap with all or part of the assets in Ward 1 and other wards.

Business groups are established by the system administrator then linked to an asset by any user with appropriate security access.

Asset Valuation Module Questions

What is the Asset Valuation module?

The asset valuation (AV) module allows a municipality to capitalize and amortize the value of acquiring or building an asset over the assets useful life and comply with the Public Sector Accounting Board (PSAB) PS-3150. The AV module will capitalize and amortize the cost of betterments to an asset, write down or write of costs and dispose of an asset.

How does the AV module work?

The AV module uses data in each asset record for each asset type to:

1. Group like assets together into categories of assets that are the same type of asset with similar useful lives. For example, roads could be categorized by traffic volume, surface material and functional classification. Doing so would group high traffic volume, paved arterial roads into one category and low traffic volume, gravel local residential roads into another;
2. Find lifecycle events in each asset record in every category that contains a "Total Cost"

- that is either the historic cost of construction/acquisition of the asset or a betterment to the asset both of values must be greater than the capitalization threshold set by the user;
3. Capitalize and amortizes the lifecycle event "Total Cost" value over the useful life set by the user;
 4. Look for any additions, betterments, disposals and write downs/off to an asset in a set reporting time period and capitalizes and amortizes all costs greater than the capitalization threshold set by the user; and
 5. Generate reports showing the initial value of an asset, how much of the assets value has been amortized to date and the value of any additions, disposals or write downs/off and the current value of the asset.

What data do I need to use the AV module?

The amount of data will vary from municipality to municipality depending on how many attributes that will be required to categorize their assets. At a minimum, the following will be required:

1. At least attribute to allow for categorization of assets. For example, for the asset type road section you can use asset material, functional class, maintenance class, number of lanes etc. as the attribute to categorize the asset type;
2. A lifecycle event with the year of construction or acquisition of the asset. If historic cost is known that value would need to be shown as the Lifecycle Event Detail "Total Cost". If the year of construction or acquisition is unknown that year would need to be estimated. An option would be to use the "Is Pooled" feature and input the estimated year of construction or acquisition i.e. 15 years, 20 years, etc.;
3. If historic cost is unknown, the discounted replacement cost feature can be used. This feature requires each asset record to have at least one geometric value (i.e. m2, or km's) so you can apply a unit cost (i.e. \$/m2 or \$/km). For lump sum items (i.e. hydrants) the Count attribute should have a "1" entered (or more if pooling) then you can apply a unit cost per "each". **If you have historical cost then you don't really need a physical dimension value;

Where would I input replacement cost?

There are two locations where replacement cost can be shown:

1. One as a lifecycle event detail type, where replacement cost could be input to show what the future cost is to replace an asset.
2. In the asset valuation module current year replacement cost can be input in order for that module to discount that cost to the year of acquisition of the asset and then amortize the theoretical historic cost over the assets useful.

When you don't know the historic cost, how would the AV module calculate replacement cost for sewer pump stations when all the stations are different sizes?

In the asset inventory for each pump station the diameter of the pump station and depth of the pump station should be populated. In the AV module use diameter as the criteria to group the like pump stations together. On the calculation page in the AV module use the valuation type discounted replacement cost, then insert in the unit cost field a value that would represent replacement cost for a pump station of that diameter and use the geometric value for depth to calculate a cost per metre. The module would then calculate a current year replacement cost for

all pump stations of that diameter and use depth to calculate the total (discounted current year replacement) cost. That theoretical current year replacement would then be discounted back to the date of the lifecycle event for construction/acquisition or years input in the “is Pooled” feature using the selected index (Consumer Price Index, Non-residential Building Construction Price Index). NOTE: PSAB 3150 made an exception for those older assets where historic cost may not be known. For new assets added to the inventory the discounted replacement cost feature cannot be used, the “Total Cost” of construction/acquisition must be input as a lifecycle event.

What if I have historic cost for some assets?

Use the discounted replacement cost feature in the AV module and set up the appropriate geometric values and costs. When the calculate button is clicked the module will first look for all asset records with a lifecycle event and capitalize and amortize the “Total Cost”. For all other asset records that do not have a lifecycle event “Total Cost” the module will calculate a discounted current year replacement using the values set up in the discounted replacement cost feature.

What are pooled assets?

A pool is a group of like assets. To create a pool, in the asset inventory click on add asset and select the asset type you wish to create a pool for. Input the asset ID, asset name and asset status. Input the attributes of the pooled asset and enter the “Count” of assets in the pool.

How do I amortize assets in a pool?

There are 2 methods:

1. The preferred method is to input a lifecycle event for the “Total Cost” for all assets in the pool as a single cost and use historic cost in the Av module to capitalize and amortize the pool.
2. When the historic cost is unknown, assets in a pool are valued by the unit cost of a single asset in the pool multiplied by the count of assets in the inventory record. That value is then discounted to the year set as the average age of all assets in the pool and amortized over the useful life set by the user for that asset type.

How do I create next year’s Capital Asset Depreciation Report?

Creating a Capital Asset Depreciation Report for all subsequent reporting periods is easy using the “Copy Reports” functionality in the AV module. Simply click on the copy reports button and all the values of the previous report are brought forward to the new report. Only 2 important steps must be executed. Click the generate categories button. That function will search for any assets added to the inventory in the reporting period and add the asset to the appropriate category. Once the calculate button is clicked, the module will look for lifecycle events that are betterments, disposals, write downs/off which occurred during the reporting period, recalculate the values and generate the updated report. (See the MDW 2.3 Asset Valuation User Guide pages 24, 25 and 26)

I need a different report with more / different columns, can you provide this?

Currently, MDW has static reports. If any changes are required or additional reports required, the municipality can send their requirements to brian@ogra.org
** All reports are used by all municipalities. There are no custom reports by municipality. Export functions are handy for municipalities to get their data out the system and manipulate it in ways that best suits their needs.

CI³P Module Questions

What is the Capital Infrastructure, Investment and Improvement Planning module (CI³P)?

The CI³P module allows a user to create a 10 year capital plan for all asset types. The plan can generate either an age based plan using on the information recorded in the lifecycle event for the asset or a condition based plan which requires a condition and performance (CAP) value.

How does the CI³P module work?

The CI³P module allows a municipality to group (categorize) like assets together by using criteria selected by the user. The categories will contain assets that are the same type of asset with similar attributes and similar useful lives (e.g. high traffic volume roads, which are paved with high class bituminous, and are arterial roads). An option is available to copy the categories set up in the asset valuation module. Strategies for repair, rehabilitation and replacement are then added to each category of asset. Each strategy requires the user to input a cost for each repair, rehabilitation and replacement strategy and select a unit of measure. The strategies set up for each category are then applied to each category and a single plan produced. In order to properly calculate a plan each asset record in every category must contain:

1. A CAP value or a LCE (depending on the method of capital planning chosen, condition based or age based); and
2. A unit(s) of measure matching the unit(s) of measure in the setup of each strategy in the CI³P module.

Once the “Generate a Plan” button is clicked the CI³P module will create projects for each asset in the plan.

Can a single plan be created for more than one asset type?

The short answer is no. The CI³P module will allow you to make individual plans for each asset type included in your MDW inventory.

Why are several assets placed into the first year of the plan?

There are two reasons why this occurs:

1. When using aged based planning the CI³P module looks for an LCE matching the first strategy set up in the module. If a match is not found the module assumes that an event did not occur and places the asset in the first year of the plan; and
2. If the CAP values have not been updated for some time, the module will add the asset to the first year of the plan.

Regardless of the reason for placing the asset in the first year of the plan the user will need to decide if anything has changed to the asset that would require that the asset be removed from the plan or if the asset should simply be moved to another year in the plan.

What if I can't afford the annual cost of the plan the CI³P module generated?

The CI³P module will allow you to simply remove a project from the plan and place it in a backlog of projects by unchecking the tick box next to that plan. Projects in the backlog can be placed in other plan years by checking the tick box for the year in which you want to include the project.

How can I move a project to an earlier year sooner than the CI³P module generated?

The CI³P module will not allow for an asset to be moved to a date sooner than what the module says is the year this strategy occurs. The only way around this is to change the date of the LCE or CAP to an earlier year.

For economies of scale can a second asset be added to a project?

Yes, simply click the "Add an Asset" button search for the asset and include it in the plan. As the added asset was not part of the original calculation that generated the plan, the values needed for the calculation will need to be manually input.

Glossary

| | |
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| Asset . . . | means public infrastructure or a component thereof that has a tangible value, enables services to be provided and has an economic life of greater than 12 months that requires on-going maintenance and capital renewal |
| Asset Management . . . | means a comprehensive business strategy that employs people, information and technology to effectively and efficiently allocate available funds amongst valid and competing asset needs. Asset Management links user expectations for asset condition, performance, and availability with system management and investment strategies |
| AV . . . | means the asset valuation module of Municipal DataWorks |
| CI³P . . . | means the Capital Infrastructure, Investment and Improvement module of Municipal DataWorks |
| Lifecycle Event . . . | means anything done to acquire, maintain, repair, rehabilitate or replace an asset |
| LCE . . . | means lifecycle event |
| LCED . . . | means a lifecycle event detail |
| Municipal DataWorks . . . | means the web-based data repository offered as a member service by the Ontario Good Roads Association to its municipal members |
| MDW . . . | means Municipal DataWorks |
| OSIM . . . | means the Ontario Structure Inspection Manual |
| PCI . . . | means Pavement Condition Index |