

# Cedar Rapids Public Works Department Standard Operating Procedure



<b>Procedure Name:</b> Microsoft Project – Creating and Updating Schedules		<b>Approved By:</b> Doug Wilson	
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<b>Published Locations:</b> Project Development and Management Manual – <b>After any revisions to this document, replace the obsolete version stored on <a href="#">this webpage</a></b> CR Report Center – data is taken from Projects and used in Power BI Reports <a href="#">here</a>			

**Purpose:** Microsoft Project (MSP) tracks capital improvement projects. Schedule, budgetary information, and construction progress are collected from all Cedar Rapids Enterprise Projects and input into Power BI reports visible on the CR Reports Center. This SOP shows how to create a new project schedule in MSP and keep it up to date. Failure to correctly represent your project schedules will result in inaccurate reporting that is visible to other Engineering team members and management.

**Scope:** Program managers, project managers, and project coordinators connected with Cedar Rapids’ Capital Improvement Program (CIP), Construction Contract Coordinators and Construction Project Managers, and Right of Way group project managers

**Procedures:** This SOP outlines steps necessary to create and update project schedules, and assumes readers have a rudimentary knowledge of Microsoft Project. If you are unfamiliar with this application, review readily available online training material for Microsoft Project (desktop version) to ensure your success.

Online Resources:

- [Microsoft Project 2016 Training Tutorial for Beginners](#)

MSP is a powerful program that may be unintuitive to those unfamiliar with Microsoft products. Ask for help from coworkers or your Coordinator as you create your first schedules to gain a better understanding of how the city uses this tool.

This SOP has two main sections: creating a new schedule, and [updating an existing schedule](#).

## Creating a New Project Schedule

At the beginning of any CIP project, as soon as a PSA is approved or a budget and schedule have been approved, a schedule should be created for it in MSP. Have this information available to help you create the Project. Note that all project information will be updated as the Project progresses.

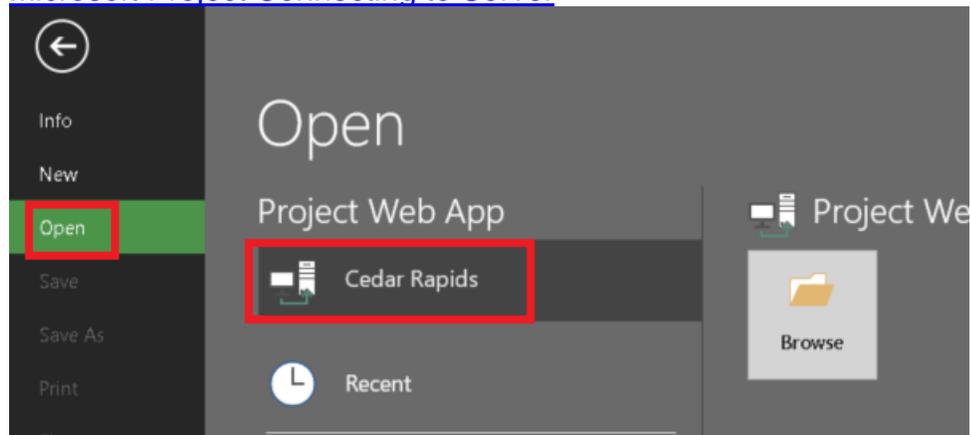
Creating a new schedule in MSP includes the following:

1. Open MSP
2. [Create a new schedule](#)
3. [Fill out Project Information](#)
4. [Eliminate unnecessary tasks](#)
5. [Add tasks not provided for by the template](#)
6. [Update the Schedule](#)
7. [Set the Baseline](#)
8. [Save](#)
9. [Set permissions](#)
10. [Publish](#)
11. [Close and Check-In](#)

The following is an expanded explanation for the above:

### **1. Open Microsoft Project**

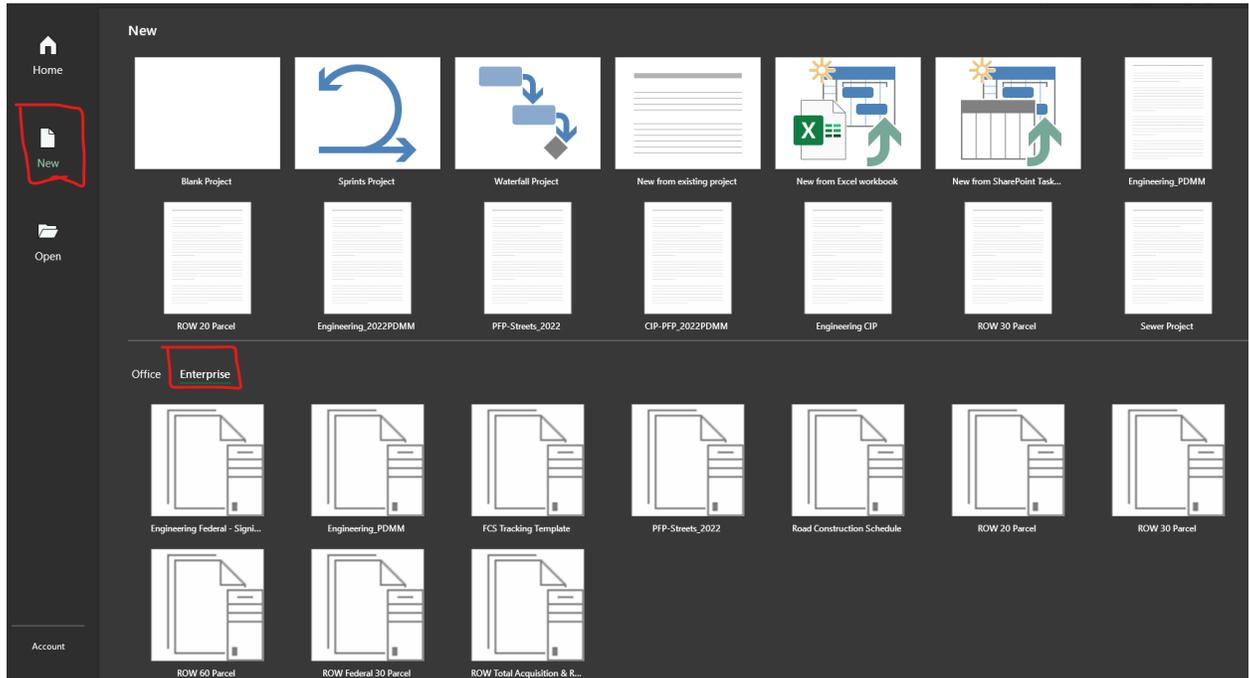
- a. If this has not been installed on your machine, ask your supervisor to request a license through IT.
- b. If this is the first time you've run the program, you may need to connect to the network. If you don't see Cedar Rapids as an option, refer to [SOP – Microsoft Project Connecting to Server](#)



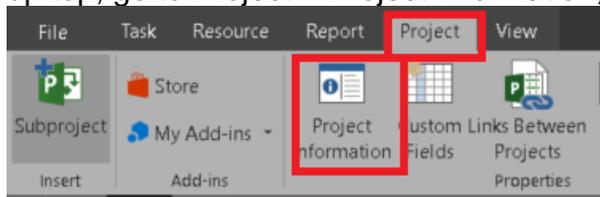
### **2. Create a new Project.**

- a. Go to New > Enterprise
- b. Select the template applicable to your project type. "Engineering\_PDMM" will be used for most Engineering projects, as it follows the PDMM. Additional templates are available for specific project types:
  - i. PFP-Streets\_2022 is a template for PFP Streets Projects that only show a construction scope
  - ii. FCS Tracking Template is used by the Flood Control System group

- iii. Road Construction Schedule is used by the Construction group
- iv. The Right of Way group uses templates identified by “ROW” which are specific to their projects. Do not use these for engineering projects



3. **Fill out Project Information.** With the new schedule in front of you, in the ribbon up top, go to Project > Project Information,



Fill out the following fields:

- Project Type (CIP, PFP, Flood, Federal, Sewer Engineering, etc.)
- Anticipated construction start date, if applicable
- Anticipated construction duration, if applicable
- Project Status (begin with “on schedule”)
- Project Phase (normally begins with design)
- Project Title (as shown on the PSA or other council documents)
- Project Number (CIP Number)
- Project Scope (as shown on the PSA or other council documents)

You may also have information pertaining to the following; if so, you should enter it to support project reporting:

- Quadrant work will be performed in
- PM (Project Manager) overseeing the project
- Consultant (as shown on the PSA or other council documents)

- Consultant Contact (as shown on the PSA or other council documents)
- Lane Miles (mileage x number of lanes)
- Mileage (straight line mileage within project limits)
- Original PSA (\$ value, as shown on the PSA, if applicable)
- PSA Contract End Date (if applicable)
- Parcel Count (an estimate is acceptable and can be updated later)

Edit the top row of the schedule to show the project's name.

Task	Task Name	Work
0	5th Street SE from 1st Avenue to 2nd Avenue	252 hrs
1	Design Phase	206 hrs
2	Design	206 hrs

4. **Review the schedule template and identify which tasks, if any, should be inactivated or removed.** The Engineering\_PDMM template assumes the full design process is completed following the PDMM. If you have a smaller project or are not working with a consultant, not all steps may be necessary. For example, if your project has a PSA but not a functional design, you would inactivate the functional design section. See image below with the “Inactivate” button marked in red.

Task Name	Duration	Baseline Start	Baseline Finish	Start	Finish
66th Ave SW from Locust Rd to 6th St	1539 days	NA	NA	Tue 9/14/21	Fri 8/6/27
PSA Approved	0 days	NA	NA	Tue 9/14/21	Tue 9/14/21
Design	268 days	NA	NA	Tue 9/14/21	Thu 9/22/22
Functional Design	35-days	NA	NA	Tue 9/14/21	Mon 11/1/21
Work-on-Design-Functional	25-days	NA	NA	Tue 9/14/21	Mon 10/18/21
Functional Design Submittal	0-days	NA	NA	Mon 10/18/21	Mon 10/18/21
City Review	10-days	NA	NA	Tue 10/19/21	Mon 11/1/21

- a. **Adjust Predecessors.** Some tasks, like Open Houses, are minimally constrained because their timing is less critical than, for example, the preliminary assessment process. Set predecessors or manually constrain tasks based on your PSA Schedule or Project Schedule. If you are not comfortable doing this, reference online learning materials.  
**Note:** Do not modify Parent Task due dates or durations. Parent tasks (which have sub-tasks beneath them) are representative of the duration and Start/Finish dates of the tasks beneath them.
5. **Add additional tasks as necessary.**
    - a. If the project contains additional meetings, tasks, or steps that would be helpful to track the project schedule, add them. Make sure to update

Predecessors as applicable.

- b. **WARNING: Do not change the names of existing Tasks; if you add new tasks that should show in Power BI reports, notify the Coordinator(s) managing Power BI.**

Power BI reports pull Task Names as written in the Engineering\_PDMM Template for reporting. If a Task Name is changed (adding notes, re-wording, etc.), it will not show up in the Power BI Report unless the Coordinators managing the Power BI report, or IT, update the Report to look for the new language in your Task Name.

In the event you have duplicates of a task (e.g. your project ends up having two intermediate turn-ins), this is ok. The report will know to look for the newest (chronologically) version of the task and will report those dates.

- 6. **Update the Project Schedule.** For each task, review and adjust the Duration column so that the Start and Finish dates align with your Project Schedule. Note that by default, the Duration column is set to **working days** - five days duration equates to five business days, not five calendar days.

Example: your design start date is 4/24/20. You want your consultant to turn in their Functional design on 6/19/20, and you intend to give City staff until 7/10/20 to finish their reviews. Here is your starting point:

<b>Functional</b>	<b>20 hrs</b>	<b>30 days</b>	<b>Fri 4/24/20</b>	<b>Thu 6/4/20</b>
Work on Design	0 hrs	20 days	Fri 4/24/20	Thu 5/21/20
<b>City Review</b>	<b>20 hrs</b>	<b>10 days</b>	<b>Fri 5/22/20</b>	<b>Thu 6/4/20</b>
PFP Review - Functional	4 hrs	10 days	Fri 5/22/20	Thu 6/4/20
Traffic Review - Functional	4 hrs	10 days	Fri 5/22/20	Thu 6/4/20
Water Review - Functional	4 hrs	10 days	Fri 5/22/20	Thu 6/4/20
Sewer Review - Functional	4 hrs	10 days	Fri 5/22/20	Thu 6/4/20
Parks and Rec - Functional	4 hrs	10 days	Fri 5/22/20	Thu 6/4/20
Review Complete, Comments to Designer	0 hrs	0 days	Thu 6/4/20	Thu 6/4/20
Functional Design Complete	0 hrs	0 days	Thu 6/4/20	Thu 6/4/20

You're going to add enough days to get the Finish dates where you want them. To do this, you would need to increase the Duration of 'Work on Design' to 41 days, and your review tasks to 15 days. If you notice, this also impacts the Start and Finish dates of downstream tasks connected to Functional design when you do this.

Functional	20 hrs	56 days	Fri 4/24/20	Fri 7/10/20
Work on Design	0 hrs	41 days	Fri 4/24/20	Fri 6/19/20
City Review	20 hrs	15 days	Mon 6/22/20	Fri 7/10/20
PFP Review - Functional	4 hrs	15 days	Mon 6/22/20	Fri 7/10/20
Traffic Review - Functional	4 hrs	15 days	Mon 6/22/20	Fri 7/10/20
Water Review - Functional	4 hrs	15 days	Mon 6/22/20	Fri 7/10/20
Sewer Review - Functional	4 hrs	15 days	Mon 6/22/20	Fri 7/10/20
Parks and Rec - Functional	4 hrs	15 days	Mon 6/22/20	Fri 7/10/20
Review Complete, Comments to Designer	0 hrs	0 days	Fri 7/10/20	Fri 7/10/20
Functional Design Complete	0 hrs	0 days	Fri 7/10/20	Fri 7/10/20

Tasks with a Duration of 0 days, such as ‘Functional Design Complete,’ are considered milestones. They don’t have a duration assigned to them because no work is actually being done; they’re a reference point used in Power BI reports and should not be changed.

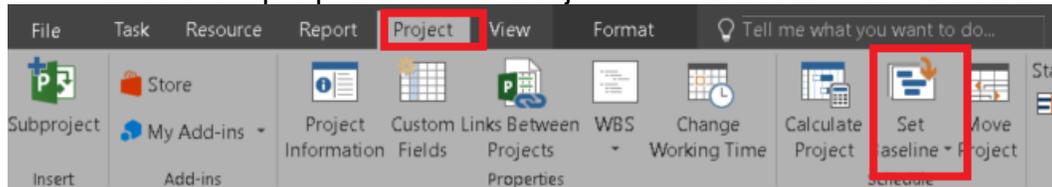
### Special Durations

Certain tasks, like those related to Council dates (Filing, Public Hearing, Acceptance), have their own special calendar they follow. Each “day” on the Council calendar is one Council meeting, so two “days” for that task may equate up to a month in calendar time.

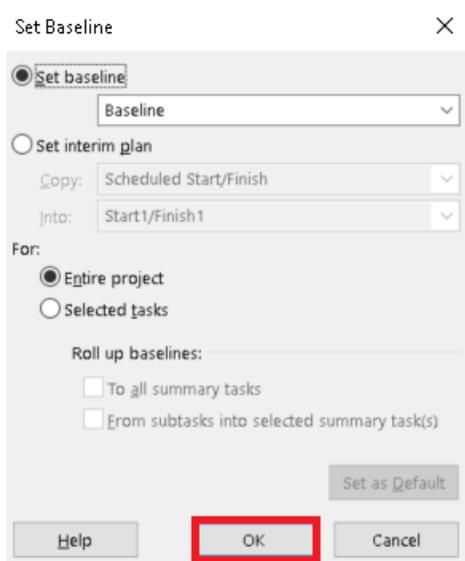
The bid letting and Council documents turn-in tasks also follow their own special rules, so don’t be surprised if adding more than one or two days to their duration has a big impact on your schedule.

7. **Set the Baseline.** Once the Tasks and Start/Finish dates match your PSA or project schedule, set the Baseline. Baselines are used to track slippage in a project that are due to discovery work, project delays, or anything that would cause the project schedule to shift. Baseline information can be pulled from Microsoft Project into Power BI for understanding where slippage occurs in Engineering projects (difference from planned finish dates to actual finish dates).

Go to the ribbon up top and choose Project > Set Baseline > Set Baseline

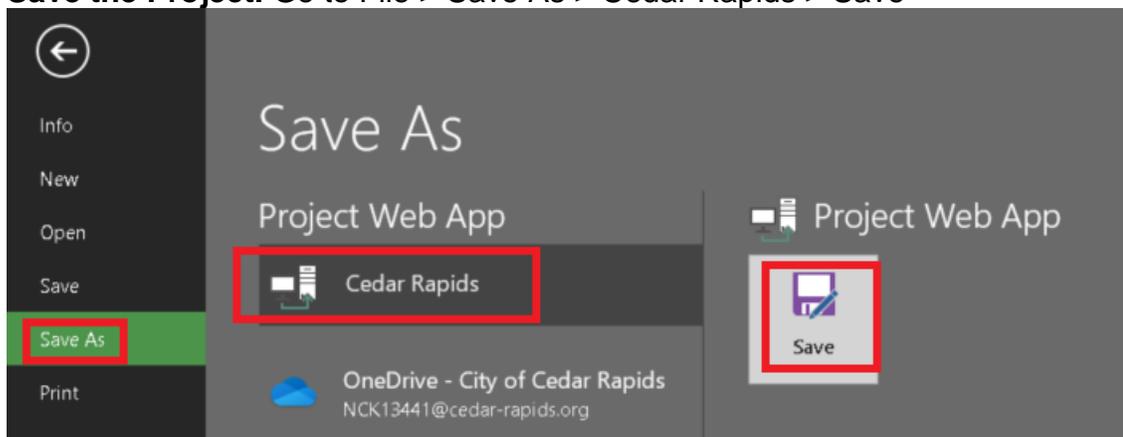


In the window which pops up, choose “OK.”



Up to 10 Baselines can be set, meaning that PSA Amendments or significant shifts to the timeline caused by external factors can be tracked to identify what caused the project to finish later than initially planned.

8. **Save the Project.** Go to File > Save As > Cedar Rapids > Save



The project 'name' should be the construction contract number, not the number used for the design contract. If you forgot to enter required information (indicated with an asterisk), you will have to do so now.

Save to Project Web App

Name: 3019999-01

Type: Project Calendar: Cedar Rapids

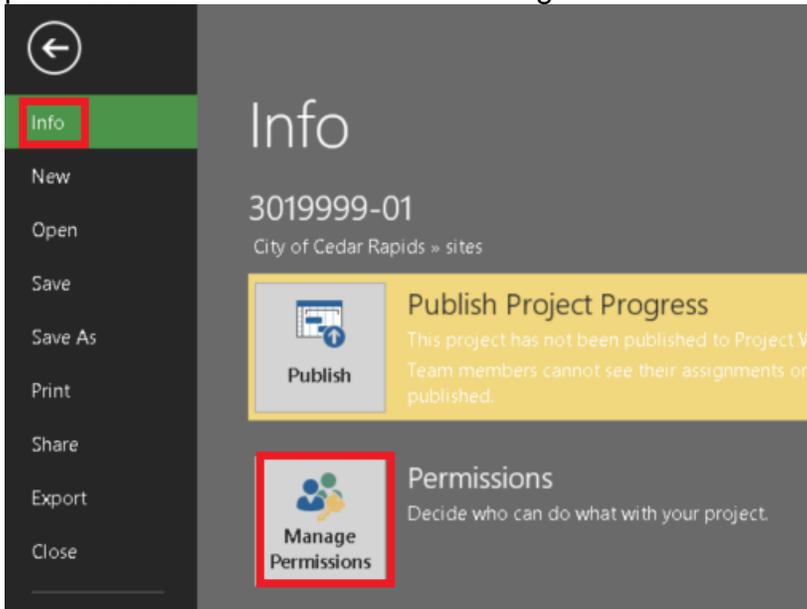
Department: Engineering

Custom fields:

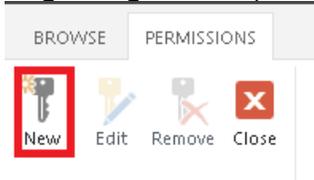
Custom Field Name	Value
E_Types*	Paving For Progress
Project Description*	5th Street SE from 1st Ave to 2nd Ave
Project Phase*	Design
Acq Agent	
Acq Complete?	
Addenda #	
CCO #	0
CIP	

Save Save as file... Cancel

9. **Set Permissions.** By default, only you will be able to see and edit the schedule you've just made. To enable others to view/edit, you need to set the appropriate permissions. Go to File > Info > Manage Permissions.



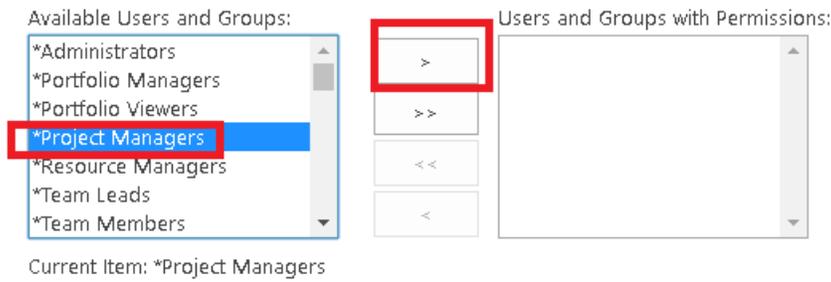
You will be taken to an internet browser version of MSP. If prompted, enter the same login credentials you used to get into the desktop version of MSP (see beginning of SOP). In the window which opens, click New.



Click all the permission boxes first, then choose "Project Managers" from the list, and then click on the right-arrow button. This gives read-write permissions to all

Cedar Rapids users. If you want to clamp down access and editing permissions, you can choose individuals rather than use the Project Managers grouping.

Select Users and Groups:

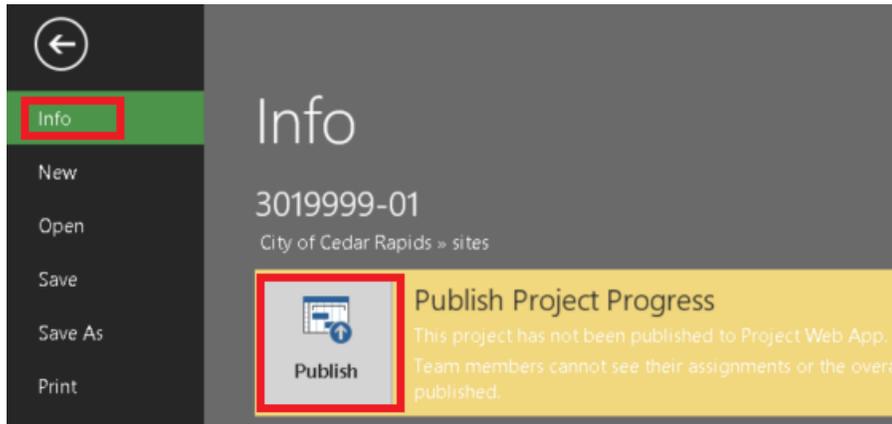


Set Permissions:

- Open the project within Project Professional or Project Web App
- Edit and Save the project within Project Professional or Project Web App
- Edit Project Summary Fields within Project Professional or Project Web App
- Publish the project within Project Professional or Project Web App
- View the Project Summary in the Project Center
- View the Project Schedule Details in Project Web App
- View the Project Site

Click Save. You can now close the internet browser and return to the desktop client.

10. **Publish.** You need to publish the schedule in order for others to be able to see what you've made. Otherwise, the schedule will only be visible to you. Select File > Info > Publish.



Press "Publish" in the window which pops up. If you get an error message, it is likely because another schedule has been created under the same contract number.

Publish Project: 3019999-01

Project Site

Create a site for this project

Provision the site as a subsite of another project?

Select a project:

Web Application:

Site URL:  /

Target URL:

Do not create a site at this time

Don't show this again for this project.

**Publish** Cancel

11. **Close and Check-In.** When you go to close the schedule, you will be asked if you wish to “Check-In.” Choose yes. Otherwise, it will remain unavailable for editing to anyone except you.

Your new schedule is complete. It will be available to you and others for future viewing and edits.

### Updating Your Schedule

As your project progresses, you should regularly revisit your schedule to keep it up to date. The dates it contains are being used to populate outward-facing reports, such as the Upcoming Bid Schedule, and are regularly review by managers to see which projects appear to be falling behind schedule.

Each time you open your schedule, you should do the following:

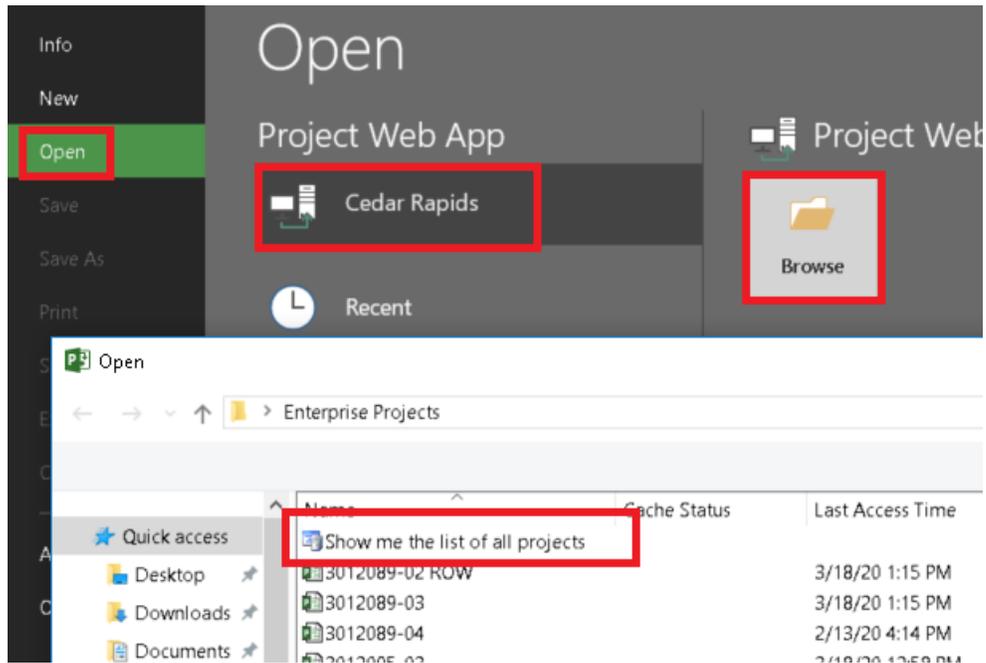
1. Open the schedule
2. [Mark finished tasks as Complete](#)
3. [Inactivate, Add, or Remove tasks as needed](#)
4. [Update expected Finish Dates](#)
5. [Update Project Information](#)
6. [Publish changes](#)
7. [Close and check-in](#)

Here’s an expanded explanation for the above:

#### 1. **Open the Schedule in MSP**

- a. If you’ve recently worked in the schedule you’re looking for, it may be available in the Recent Files list. If not, click on “Open Other Projects” in the lower left corner of the screen.

Click on Open > Cedar Rapids > Browse > Show me the list of all projects



Your project schedule should appear in the full list. If it does not, you may have forgotten to either set permissions or publish the project schedule when it was created. Ask one of the Project Coordinators to find the schedule and make it visible for you. IT can also do this

## 2. Mark finished tasks as Complete

- a. If a yellow bar identifies the project as being in “Read Only” mode, select “Check Out” to make updates to the project.
- b. For tasks that were completed late, first update the correct “Finish” date in the column, then mark the Task by selecting the row, navigating to “Tasks” in the ribbon, then “Schedule”, and selecting 100%. A task being 100% complete will remove it from the Upcoming and Overdue PowerBI reports.
- c. For tasks that were completed on time or have made progress: select each applicable row, and in the ribbon under “Task”, “Schedule”, select the appropriate approximate percent complete (25%, 50%, 75%, 100%).
- d. If a Task Finish date was extended, this may affect other Tasks in the project. You can tell if a date was affected by the cells automatically highlighting pale blue when the date is changed. Press F9 to refresh and remove this highlighting.
  - i. To prevent project slippage, consider decreasing the duration (number of working days) of subsequent tasks to make up the difference. Make sure the Consultant or other affected parties can support the change in schedule.
  - ii. Task Durations highlighted green (shown below) are the recommended Task durations to change. Tasks highlighted orange or with a 0-day duration or yellow with a 1-day duration should **not** be changed, as this will create errors in the schedule and data input into Power BI for reporting.

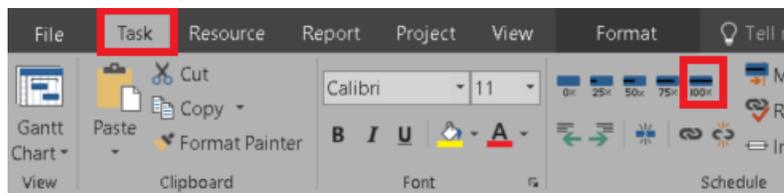
310 days	NA	NA	Tue 9/10/19	Mon 11/16/20	19	
239 days	NA	NA	Tue 9/10/19	Fri 8/7/20		
0 days	NA	NA	Fri 8/7/20	Fri 8/7/20	21FF	Duration = 0. Do Not Change.

Example: a 30% [SJJ] turn-in was originally scheduled to be complete by 8/21/20. The Consultant was a week late, and actually turned in the submission on 8/28/20.

30% Plans	34 hrs	42 days	Mon 7/13/20	Tue 9/8/20
Work on Design - 30%	0 hrs	30 days	Mon 7/13/20	Fri 8/21/20

First, update the duration of Work on Design – 30% to reflect the actual turn-in date.

30% Plans	34 hrs	47 days	Mon 7/13/20	Tue 9/15/20
Work on Design - 30%	0 hrs	35 days	Mon 7/13/20	Fri 8/28/20



In the next image, the duration of a subsequent task was adjusted to keep the Baseline Schedule. Continuing the example, the 90% turn-in duration was reduced by 5 business days.

90% Plans	48 hrs	35 days	Wed 9/16/20	Tue 11/3/20
Work on Design - 90%	0 hrs	25 days	Wed 9/16/20	Tue 10/20/20

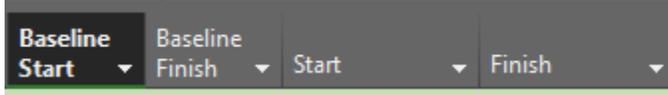
3. **Inactivate, Add or Remove tasks as needed.** Tasks in the project may change.
  - a. If a Task is no longer required for the project (for example, a permit or review from a specific city group), inactivate the task to remove it from the project and project timeline.
  - b. If a Task or Tasks need to be added, insert rows and apply the appropriate predecessors to those tasks so they work with the project schedule.  
**Note:** these added tasks will NOT show in Power BI reports unless you specifically notify the Coordinator managing Power BI reporting to add those Tasks; the Power BI reports currently filter for specific Task names.
  - c. Remove Tasks only if there is no value maintaining a record of the Task; inactivating a Task shows that the removal was purposeful, and not just a neglected step.

Follow the directions for [adding tasks](#) and [deleting tasks](#) found in the Creating a New Schedule section to achieve what you need.

4. **Update expected task Finish Dates.** Account for schedule changes by adding or removing days to subsequent Task Durations, just as you did [when you created the Project](#). Remember, changes you make to one Task will affect

downstream Tasks, potentially including your Bid Date or Construction Start Date.

Note: to view project slippage, you can compare your Baseline Start and Finish Dates for specific Tasks to the Start and Finish (actual/scheduled) dates.



- Pay attention to the Task Mode and Task Calendars, shown in the two leftmost columns. Manually scheduled (versus Automatically scheduled) tasks will affect how Tasks are scheduled, and any calendars applied to the tasks (shown in the (i) column, which include Publishing Dates, Council Dates, Joint Utility Meeting dates), will also affect scheduling. If dates with Calendars appear to be incorrect, contact your Consultant for the corresponding Calendar to be updated.
- If you want to shift a task within an allowable time range, consider adjusting the Constraint type, found under Task Information. The task can be scheduled As Soon As Possible, As Late As Possible, and to Start or Finish No Earlier or No Later than specified dates.
- Reference the Notes column to learn about any specifications relevant to the task or its scheduling.

Tas	Mc	i	Task Name
→	→	→	2nd Publi
→	→	→	Step 5- Re
→	→	→	Step 6- Re
→	→	→	Prelimina
→	→	→	Final Assess
→	→	→	Right of Way

Task Information

General | Predecessors | Resources | Advanced | Notes | Custom Fields

Name: Steps 2 & 3 - Resolution to Fix Value of lots, Reso adoptin Duration: 1 day  Estimated

Constrain task

Deadline: NA

Constraint type: As Soon As Possible Constraint date: NA

Task type: Fixed Units  Effort driven

Calendar: Council Calendar  Scheduling ignores resource calendars

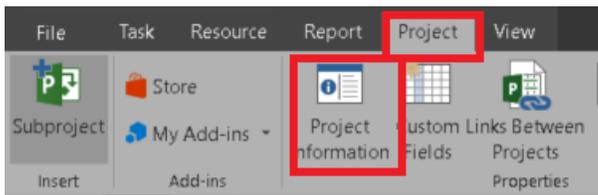
WBS code: 3.1.3

Earned value method: % Complete

Mark task as milestone

Help OK Cancel

## 5. Update Project Information. On the Ribbon, navigate to Project > Project Information.

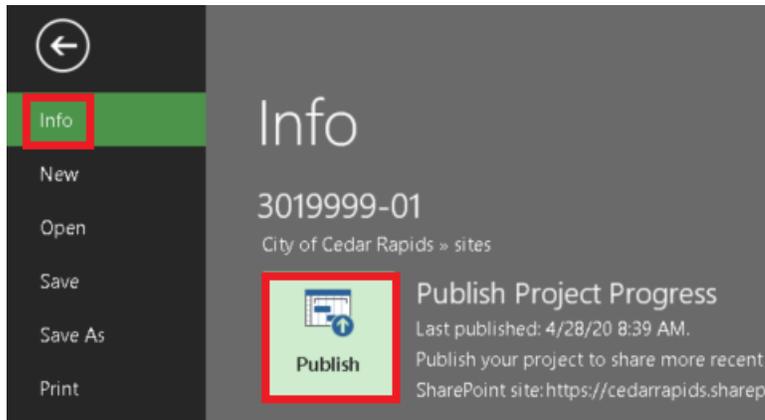


Update any Custom Fields that have changed. This may include the Anticipated Construction Start Date or duration, Project Status, Project Phase, EOPC, PSA-A cost or count, Parcel Count, or any of the other fields.

- If a Custom Field has an asterisk (\*), it is a required field.

- Note that all Custom Fields are visible in Power BI reports, and inaccuracies here will display in reporting.

**6. Publish changes.** After you are finished, navigate to File > Info > Publish. Publishing also Saves changes. Without Publishing, the changes you make will not be visible to others.



**7. Close and Check-In.** When you close the project, you will be asked if you wish to “Check-In.” Select “yes”. If you do not, it will be inaccessible to others for editing until you check it in, or a Coordinator or their designee force checks the project in.