North Dakota New Development Calculator (ND2C)

Walkthrough, Notes, & FAQs

Follow these four easy steps to use the ND2C:

Step 1: Input the Project Details

Input Variables

Project Details	**Total Amount**	**Unit**
Single-Family Residential	100	Housing Unit
Single-Family Attached/Townhomes	20	Housing Unit
Multi-Family Residential	10	Housing Unit
Office	7	1,000 SF GFA
Retail and Services	5	1,000 SF GFA
Restaurant	10	1,000 SF GFA
Hotel	-	1,000 SF GFA
Industrial	-	1,000 SF GFA

Enter:

- The number of units of a proposed development
- The amount of square footage of non-residential uses

Step 2: Input the Proposed Land Development Details

Proposed Land Development		
Area of Development	67.00	Acres
New Arterial Street	1,000	Linear feet of roadway
New Neighborhood Street	8,000	Linear feet of roadway
New Civic Street		Linear feet of roadway
New Water Mains, Local	8,000	Linear feet of pipe
New Water Mains, Regional	1,000	Linear feet of pipe
New Sanitary Sewer Mains, Local	8,000	Linear feet of pipe
New Sanitary Sewer Mains, Regional	1,000	Linear feet of pipe
New Stormwater System, Local	8,000	Linear feet of pipe
New Stormwater System, Regional	Yes	Based on acreage
Direct Costs to City for Development	$ -	Dollars
Direct Revenue to City for Development	$ -	Dollars

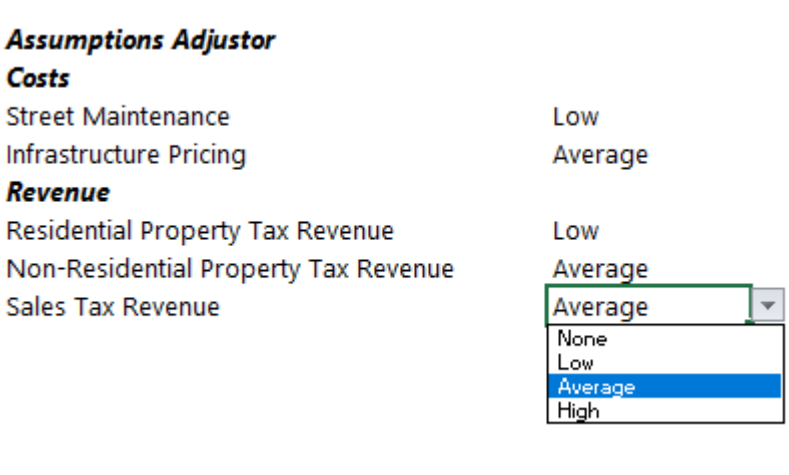
- The amount of new infrastructure by unit (linear feet, acres, dollars)
- Direct costs: All one-time costs associated with development (not including staff time)
- Direct revenue: Non-tax revenue (i.e. permitting fees)
- If there will be a new regional stormwater system, toggle the switch to "Yes"

Step 3: Fill in Other Miscellaneous Details

Other Details		
Build-Out Timeline	2	Years
Year Project Begins	2020	Must be 2020 or later
Municipal Mill Levy	58.5	Mills

- How long the project will take to complete (must be greater than 0)
- When the project will begin
- The mill levy

Step 4: Adjust Assumptions (See "Important Notes" for more de tails on how to use)



Change costs and revenue amounts based on details like:

- Location of community
- Details of the project
- Size of the community
- Estimated value of new development

Important Notes

- The ND2C is designed to provide a **conservative estimate and starting point** for discussing the fiscal impact of projects. The projected numbers are **estimates**. Based on community conditions, project details, and other variables (discussed in depth below) the cost may be higher or lower. This tool is designed to give communities an estimate of long-term costs and benefits to spark additional dialogue about the fiscal impact of a project.

- Rather than rely on one number as the definitive estimate for a project's long-term costs and benefits, we recommend **using the Assumption Adjustor settings** (see below) to get a **range of cost and revenue estimates**. The Assumptions Adjustor allows the user to see how costs would change if they were higher or lower than anticipated and get a lower and upper bound for a project.

- The ND2C intentionally excludes services like police, fire, general government, parks, public health, etc. The Calculator treats these as "fixed costs" associated with running a community—i.e. by adding a new development, a city won't necessarily have to take on additional costs to provide these services. This is a conservative assumption. There are **many circumstances where a community might have new costs in these areas because of a new development,** but communities should factor that into their analysis, rather than rely on the ND2C to perform this calculation.

- Relatedly, the **ND2C will ignore any increases in services a project necessitates**. For instance, a greenfield development might require the community to build a new fire or

police station to maintain standard service times. Another larger development might require the community to hire additional staff at city hall. The ND2C does not include these project-specific, community-specific details. It is critical that communities appropriately assess these considerations when weighing projects.

- The ND2C estimates how much a **community or county will collect in property tax revenues** from a development, NOT how much the development or individuals will pay in property taxes overall. The amount a community or county collects is determined by the mill levy entered by the user. A property-owner should anticipate pay much higher total taxes because additional mills will be levied that go towards other (schools, state government, county/community, etc.)

- For simplicity's sake, the model assumes that **development *revenue***—any direct revenue that a new development brings in, excluding taxes (e.g. permitting fees)—**is generated in the first year of a project**. For instance, if a project brings in $10,000 in permitting fees, that will take place entirely within Year 1.

  Development *costs*—any direct costs associated with development, excluding staff time (e.g. any one-time infrastructure upgrades) to the city—**are spread out over however many years the project will take the complete.** For instance, a project that has $12,000 in development costs and takes 2 years to complete will cost $6,000 in Year 1 and $6,000 in Year 2 (before applying NPV calculations). The model rounds up project durations to the nearest integer (i.e. a project taking 1.3 years to complete will take 2).

- The ND2C **is agnostic towards how communities and counties pay for development**. It merely displays how much a project will cost and what revenue it will generate. A community may elect to cover the costs of a project using special assessments, for instance, but that does not change the raw, absolute cost of a project and that someone (whether it's the community or its citizens) must bear that cost.

- The infrastructure costs are based on data from Watford City, Bismarck, and Minot collected in 2020. The cost of infrastructure can be difficult to estimate. Communities have different specifications for how they build infrastructure, which changes the prices. And projects may require costs above or below the average cost per linear foot of road/pipe based on the soil type, terrain, drainage situation, etc.

  To deal with this variability, ND2C gives the user the ability to adjust the costs through the Assumption Adjustor. There are five different levels, which ideally provides enough flexibility to accommodate the project details. One recommendation is for the user to **perform a sensitivity analysis**: Select the Very High and Very Low settings to get a **range of the cost estimates** for a project.

Unfortunately, the current cost adjustment feature applies broadly to *all* types of infrastructure in the model (for instance, you can't increase the costs of roads but decrease the cost of pipe simultaneously).

- Here are some more suggestions on how to use the Assumption Adjustor:
    - **Street Maintenance:** This adjustment changes the cost of street maintenance per linear foot. Smaller communities and communities that pay more for raw materials may want to consider setting their street maintenance costs to "High."
    - **Infrastructure Pricing:** This adjustment changes the cost of building new infrastructure (and therefore the annual capital depreciation rate). Western communities that pay more for materials may want to consider setting their Infrastructure Pricing costs to "High."
    - **Residential Property Tax Revenue:** This adjustment changes the assessed value of new residential properties in a development. Larger communities and communities undertaking higher-end development projects may want to set this setting to "High."
    - **Non-Residential Property Tax Revenue:** This adjustment changes the assessed value per 1000 SF GFA[1] of new non-residential properties. Larger communities and communities undertaking higher-end development projects may want to set this setting to "High."
    - **Sales Tax Revenue:** This adjustment changes how much sales tax per resident and per 1000 SF GFA will bring in. Larger communities and communities undertaking higher-end development projects may want to set this setting to "High."

FAQs

- ***Q: Who can use the ND2C?***

  A: Anyone can use the ND2C. The underlying data and calculations behind the Excel spreadsheet are not able to modified in any way, though.

- ***Q: What types of projects are the best?***

  A: The point of this tool is not to make a judgment call on projects. There is no "best" project and perfectly good projects can have net-negative fiscal costs. There might be positive benefits that this tool doesn't account for and a city might decide for any number of sensible reasons that a costly project is still worth pursuing. Furthermore, **the**

[1] Square Footage of Gross Floor Area – the total floor area inside the building envelope, as opposed to the total square footage of the land footprint.

ND2C is an estimate, not a precise calculation, and the numbers might be off (particularly for a negative project that's relatively close to net-neutral).

The implication of the ND2C is not that communities should never pursue a project that has a negative NPV. It is to demonstrate and provide an initial estimate of the long-term costs and benefits associated with new development. These costs and benefits can be difficult to conceptualize, and the ND2C provides a conservative starting point for future discussion and analysis about the fiscal impact of development.

Because infrastructure tends to be the most expensive part of a new development, projects that rely more heavily on existing infrastructure (i.e. infill) will perform better in the fiscal analysis than those than involve new infrastructure.

- ***Q: What if I don't know all the details/numbers that the calculator is asking me to input?***

  A: That's ok! The ND2C is interactive and you can change the numbers at any time. If you don't know the specific details, some suggestions are to use your best guess or to try the lowest and highest amounts (of road, houses, pipe, etc.) you could reasonably expect to get a range of costs. Once you know more details, you can always change them later.

- ***Q: Where does the data come from?***
  A: The ND2C's data on street maintenance comes from city budget data from over 700 communities across Minnesota and North Dakota. The infrastructure and capital depreciation figures come from engineers with Minot, Bismarck, and Watford City. Household income and household size data comes from the US Census. For more information on the numbers informing the model, check out the Assumptions and Figures sheet.

- ***Q: How does the model account for inflation or changing prices?***
  A: The ND2C assumes that the 2020 prices will increase by **2% year-over-year**. The model makes that adjustment when the user enters the year the project will be completed. The underlying data may be updated at any time by MSI staff.

- ***Q: What if my community uses a different type or specification of infrastructure than the one outlined in the model? What if the specifications of a project mean higher/lower prices?***
  A: The Assumptions Adjustor allows communities to change the costs per unit and get a broad range of what the costs of infrastructure might be. Take note that the adjustment in costs applies to all types of infrastructure in the model. The Notes section (above) describes these ideas in more detail. Remember, the ND2C is intended to be the **starting point** for discussions about fiscal impact!

- ***Q: Does the ND2C account for any of the secondary costs or benefits associated with projects?***
  A: Currently, the model does not account for many of these secondary costs—interest rates on bonding, administration or engineering costs with an infrastructure project, right of way, or easements. For a list of what costs are included, please refer to the Assumptions and Figures sheet.

- ***Q: How do you determine how much a community receives in property taxes for a residential/non-residential property?***

  A: We use the following formulas:

Residential: $$Assessed\ Value\ \times 0.5\ \times 0.09\ \times \frac{Mill\ Levy}{1000}$$

Non-Residential: $$\frac{Assessed\ Value}{1{,}000\ Sq.Feet\ of\ Gross\ Floor\ Area}\ \times 0.5\ \times 0.10\ \times \frac{Mill\ Levy}{1000}$$

  You can find more information on what assessed values the ND2C uses in the Assumptions and Figures page. If your municipality uses a different assessment formula, try manipulating the mill levy figure to make the numbers come out correctly.

- ***Q: Will the ND2C work for other states?***
  A: The ND2C was **designed specifically for North Dakota communities**, but may in specific circumstances be applicable for communities in other states, too. The street maintenance costs will be broadly applicable to communities sharing the climate of Minnesota and North Dakota. Users can refer to the infrastructure costs to see how and if they align. Many of the revenue equations rely specifically on North Dakota communities' data and US Census data for North Dakota (i.e. household income, home and commercial property values, sales tax data), which may complicate attempts to use the data in another state. Furthermore, residents of states that do not use mill levies may find computing the proper assessment formula challenging.