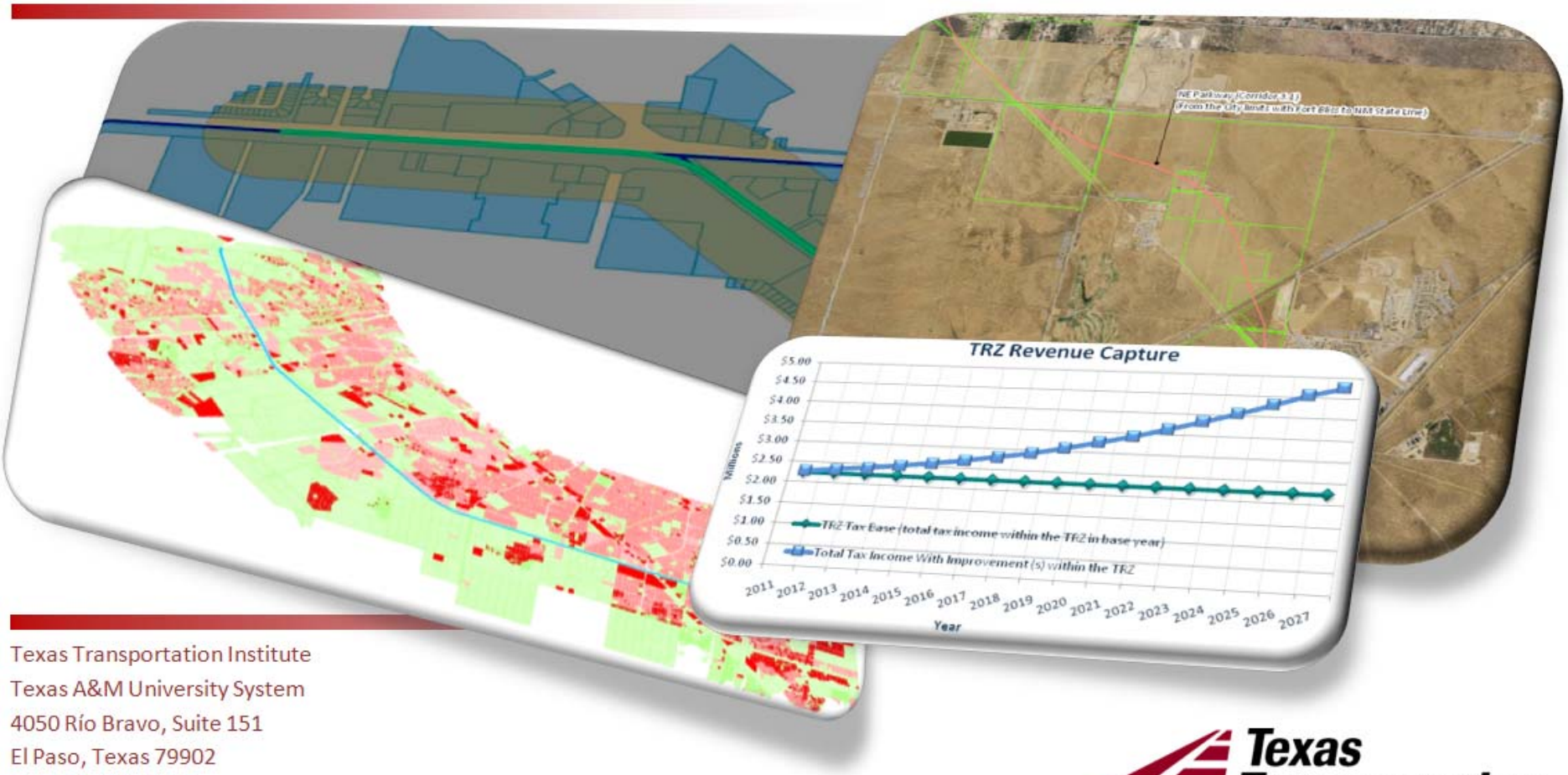
Transportation Reinvestment Zone Revenue Feasibility Tool

User's guide



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Disclaimer

The Texas Transportation Institute reserves the right to make changes, corrections, or improvements at any time. The Texas Transportation Institute is not liable for any loss caused by reliance on the Transportation Reinvestment Zone Revenue Feasibility Tool or this document.

This tool is designed to provide a preliminary guidance of the feasibility of a TRZ generating revenues. The results provided by this tool should not be used in any manner as a revenue or payment schedule or the sole basis to make a decision. If the results of this tool are positive and a county or municipality decides to pursue a TRZ implementation, the agency implementing a TRZ should seek expert advice. The same tool may be further calibrated for in depth study of a region's TRZ's revenue generation capacity from different sources. It does not include sales tax revenue generation capacity since the TRZ law, as it stands in 2010, does not support sales tax revenue. Should the law change, further changes in the tool will be warranted.

Introduction to the TRZ Revenue Feasibility Tool

This section discusses the various elements of the TRZ Revenue Feasibility tool for estimating if a TRZ can generate enough revenues.

The objectives of this tool are:

- to assist in the preliminary valuation of TRZ revenue potential by estimating the Present Value (PV) of the cash flows resulting from the tax revenue differential accruing to the TRZ over time;
- to assist in providing needed early cash flow estimates for planning purposes and for facilitation of dialogue with stakeholders; and
- to facilitate sensitivity, scenario, and Monte Carlo simulation analyses.

TRZ revenues are estimated according to the provisions of the SB 1266 Act; adopting the tax base of the year the TRZ is established as a baseline (the tax base is calculated by aggregating all the individual values for the baseline parcels within the TRZ). The TRZ revenues in each subsequent year, through the end of the TRZ, are then estimated as the tax revenue for that particular year—appraised value multiplied by tax rate in effect minus the baseline (Figure 1).

The TRZ Revenue Feasibility tool is currently hosted at: http://ciitr.tamu.edu/RMC.aspx .

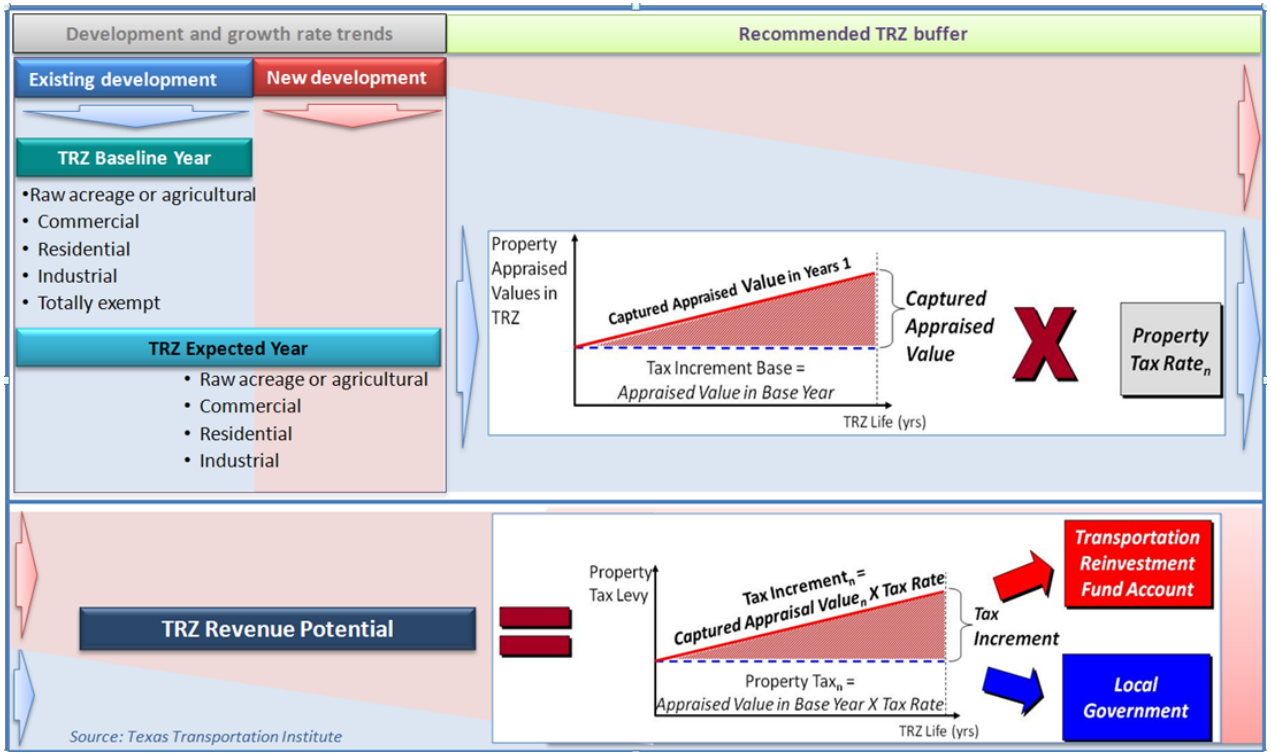


Figure 1. TRZ Revenue Calculation Approach—Conceptual Model used in the tool.

How the TRZ Revenue Feasibility Tool helps you make better decisions

TRZs provide a good mechanism to capture revenues generated by large scale capacity improvements; however, multiple questions emerge before implementing a TRZ:

- What should be the geographic extent where capacity improvements produce economic impacts on property values and development trends?
- How much revenue can a specific TRZ buffer-size support?
- What will be the property values attained upon development (for both existing property uses and newly developed land)?
- How sensible is the pace of vacant land development in the timing of TRZ cash flows?

The TRZ Revenue Feasibility Tool can help you to analyze these questions and arrive at a satisfactory course of action whether pursue or not the implementation of a TRZ. Numerical results from the tool include the present value of the following cash flows:

- Net capital available,
- Aggregate TRZ revenues (existing plus new development revenues),
- Existing development, and
- New development.

By linking GIS parcel information to key input parameters, this tool allows one to assess the potential land-related revenue implications from transportation projects.

Outputs	
Unidscounted TRZ Cumulative Cash Flow (Nominal)	$ 42,620,394
Discount on Cash Flow (Nominal - Discounted)	$ 27,448,005
TRZ Borrowing Capacity in Base Year (Discounted to base year)	**$ 15,172,389**
Existing Development TRZ PV (Borrowing Capacity)	5,116,473
New Development PV (Borrowing Capacity)	2,626,054
Vacant Land TRZ PV (Borrowing Capacity)	$ (200,736)
Net Aggregate TRZ PV (Borrowing Capacity)	15,172,000
(+) Interest Earned Through Construction	607,000
Net Capital Available	**$ 15,779,000**

Figure 2. Financial parameters provided by the TRZ Revenue Feasibility Tool to accept or reject the project.

The tool can help you to build scenarios and plan for optimum, likely, and pessimistic conditions. Furthermore, the tool will allow you to create scenarios based on a combination of

- different TRZ sizes (i.e. 300 vs. 2,000 acres),
- different timeframes (i.e. a 15 year vs. a 30 year obligation),
- different financial parameters (i.e. a 5% vs. a 12% discount rate), etc.

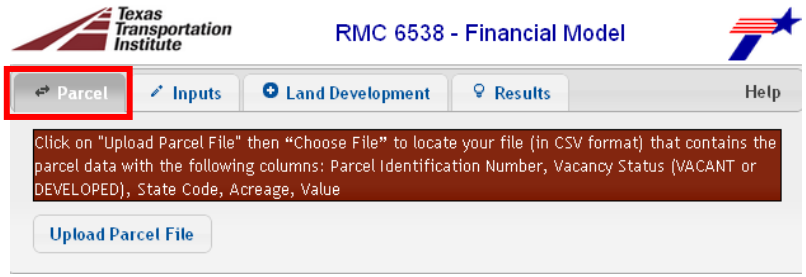
Year	TRZ Revenue (Forecast – Base)
2011	$ 133,994
2012	282,039
2013	433,319
2014	609,621
2015	827,859
2016	1,045,938
2017	1,292,039
2018	1,572,273
2019	1,907,910
2020	2,319,789
2021	2,774,514

Figure 3. TRZ Undiscounted Cash flows for a TRZ implemented in 2010 (first cash flow in 2011) and terminated in 2021.

Overview of the TRZ Revenue Feasibility Tool Interface

The TRZ Revenue Feasibility Tool combines information from geographic information systems (GIS) with a powerful financial model. The interface of the tool is composed of 4 main tabs: (i) Parcel, (ii) Inputs, (iii) Land Development, and (iv) Results.

The Parcel tab includes information of a proposed TRZ delimited area in acres. Subsequently, vacant and non-vacant parcels are classified into 5 real estate categories: Agricultural or Raw acreage, Commercial, Industrial, Residential, and Totally exempt (government, churches, etc.). Only the first 4 are considered through the rest of the process. Subsequently, the timing of development in the Inputs tab allows the user to mark the beginning of the development (i.e. if the municipality has already sold raw acreage to a developer, the timing of development might be 3 years before the capacity improvement opens to the public).



The Inputs tab is divided in 2 main sections: Basic Inputs and Timing of Development.

The Basic Input section includes some financial parameters are needed: the interest on debt (or discount rate), debt coverage ratio (in case of a bonding project), and the interest rate earned during construction. The base year is the year the TRZ is implemented. The construction start year is when the proposed capacity improvement or transportation project begins to be constructed. Once construction is complete, the opening year is when the project opens to the public. The year the debt is issued gives flexibility if the municipality or county plan to issue an obligation in a year other than the base year (otherwise the base year is retyped).

The TRZ entity tax rate should reflect the property tax component of the entity that established the TRZ.

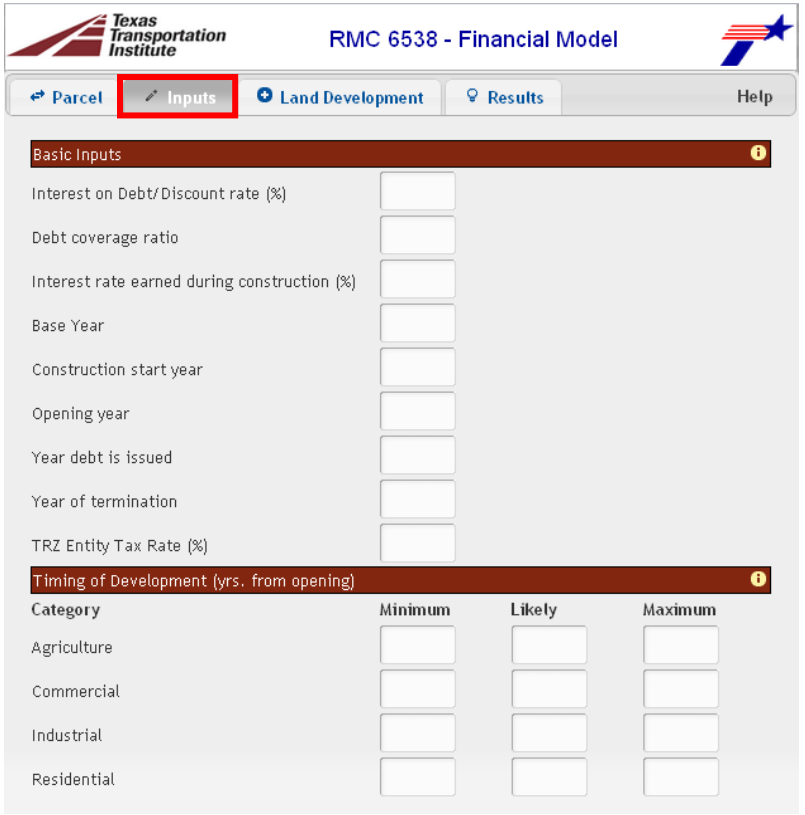


Figure 4. Inputs Tab for the TRZ Revenue Feasibility Tool.

Overview of the TRZ Revenue Feasibility Tool Interface

The Land Development tab is the second one, and is composed of multiple sections grouped in three main areas: (i) Timing of Maximum Development, (ii) Estimated Net Taxable Value Growth Rates (Prior Opening, and in 5 year increments), and (iii) Remaining Undeveloped (residual vacant).

The Timing of Maximum Development section is the time required to reach maximum development of the base-year vacant land acreage for each land use. This allows the user to explore multiple patterns of development—vacant land conversion to developed uses—for the 4 categories that are TRZ eligible. The timing of development can be input using estimates for a lower bound (minimum), the most likely value, and an upper bound (maximum) for the amount of time until all land is completely developed.

The Estimated Net Taxable Value Growth Rates are annual inflation-unadjusted growth rates over the analysis period for taxable values for properties located inside the TRZ. These can be input individually for each category in 5-year increments over the TRZ analysis period, and also for a lower bound (minimum), the most likely value, and an upper bound (maximum). Usually, the closer the time-period of the analysis, the narrower the lower and upper bounds, but as the time period gets further in time, wider lower and upper bounds simulate more uncertainty (explained in detail in further sections).

The Remaining Undeveloped (residual vacant) section allows the user to input the land that remains vacant, as a percentage of the vacant acres in the base year. The goal of this input is to model only the built portion of a lot because the property tax is assessed primarily on the developed area (i.e. a residential house of 0.1 acres built over a 0.2 acres lot is taxed primarily based on the 0.1 acres).

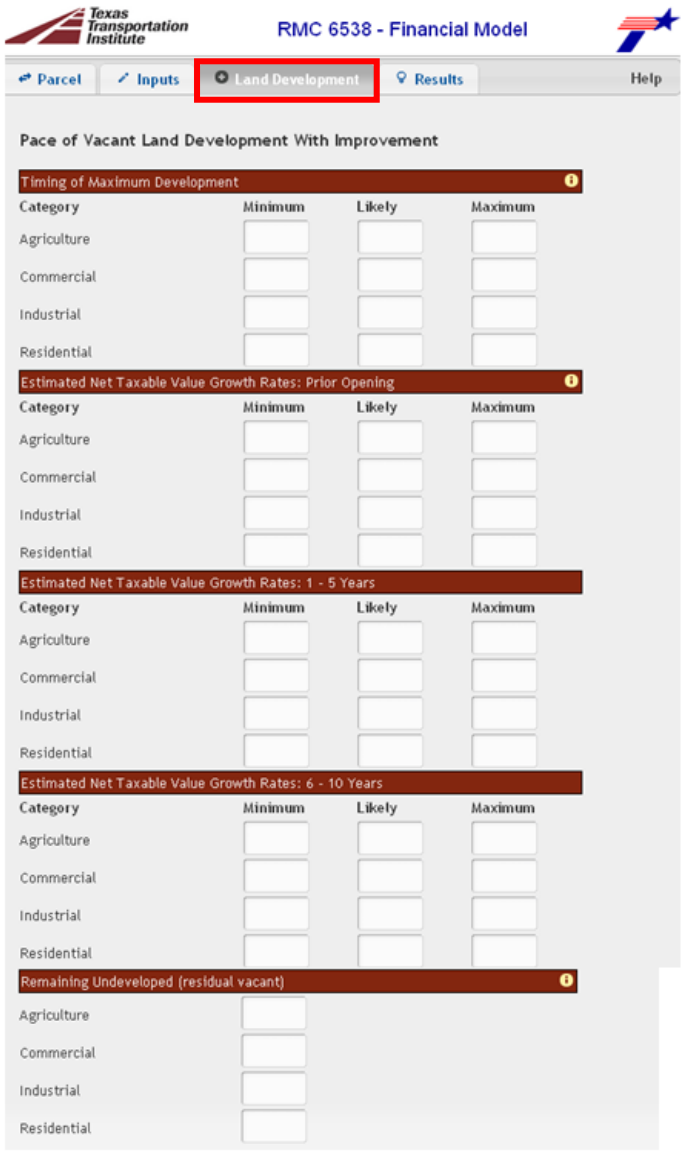


Figure 5. Land development Tab for the TRZ Revenue Feasibility Tool.

Overview of the TRZ Revenue Feasibility Tool Interface

The Results tab is the last section of the tool. The outputs provided by the TRZ Revenue Feasibility Tool are the parameters that will help you to make a decision whether pursue or not the implementation of a TRZ.

These parameters include: (i) Undiscounted TRZ Cumulative Cash Flows, (ii) TRZ Borrowing Capacity in Base Year, (iii) Existing Development Present Value, (iv) New development present value, (v) Interest Earned during Construction, and (vi) Net Capital Available from a specific TRZ.

The user can develop different scenarios only by changing the Basic Inputs or the Land Development parameters; thus, having the ability of know how a worst-case scenario will look, or a how much potential a TRZ has in very optimistic conditions. In the same manner, a user can explore the Net Capital Available of TRZs with different time horizons.

In addition, the tool gives the flexibility to upload TRZs of different sizes and explore the results of each one of them. For example, a TRZ of 400 acres might reflect a Net Capital available of 3 million dollars for a 30 year horizon, at a 5% discount rate; however, everything else remaining the same, the same TRZ might only provide 300,000 dollars if the timeframe is shortened to just 10 years.

Next, we provide a quick tutorial with short fictitious exercises to use the tool.

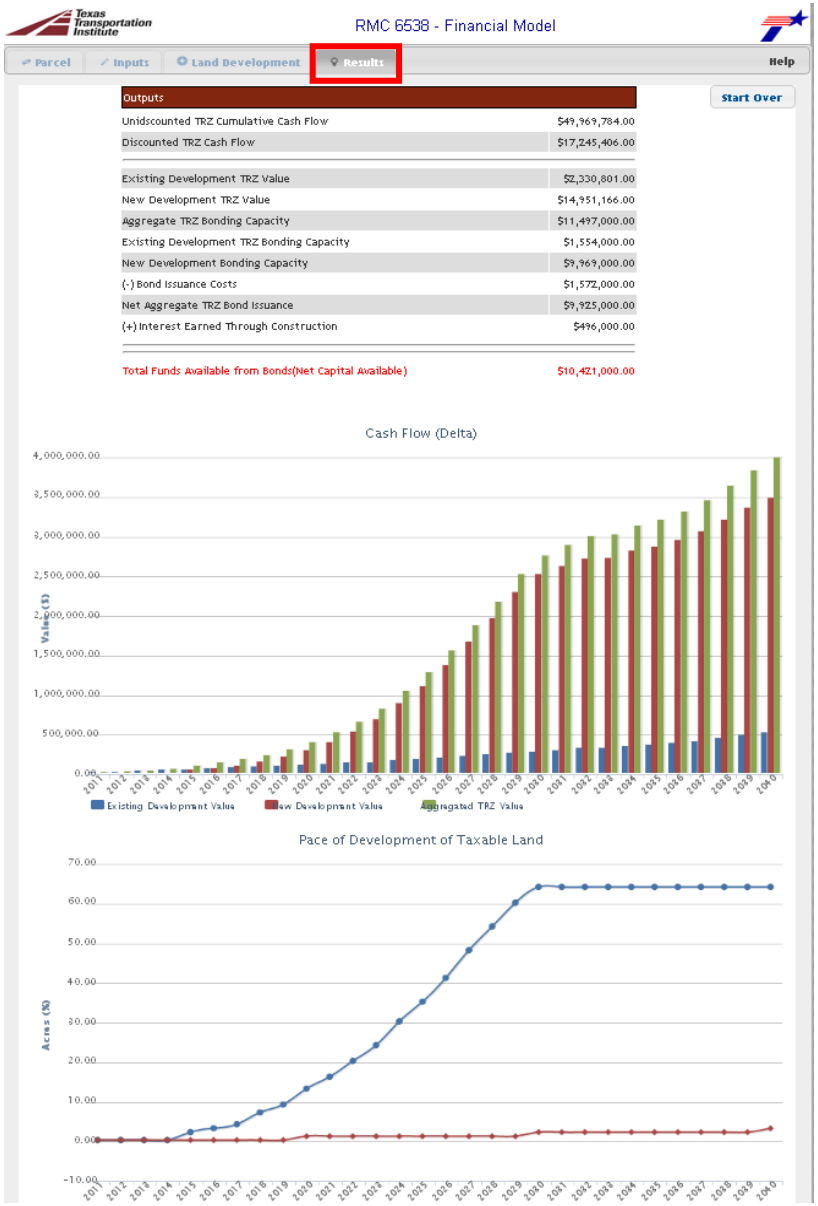


Figure 6. Results Tab for the TRZ Revenue Feasibility Tool.

Glossary

Welcome to the TRZ Revenue Feasibility Tool tutorial. This section takes you through the process of analyzing your data from uploading your parcel data to developing scenarios and plan for optimum, likely, and pessimistic conditions; furthermore, this tutorial will provide you tips to interpret the results of each scenario.

In this tutorial you're the mayor of the City of Oak Point, TX. Several transportation projects need to be implemented, but the funding crisis has hit the City budget. You have learned that El Paso has recently implemented a TRZ as a supplemental funding mechanism, so you decide to ask your Finance and GIS departments to explore if it is worthwhile pursuing a TRZ implementation before hiring an expensive consultant.

The transportation funding specialist, from the Texas Department of Transportation, just sent you the link of the TRZ Revenue Feasibility Tool to assist your finance department to explore if it is worthwhile pursuing a TRZ (http://ciitr.tamu.edu/RMC.aspx).

You click on the link and proceed to complete the first step of the process: Upload your Parcel data.

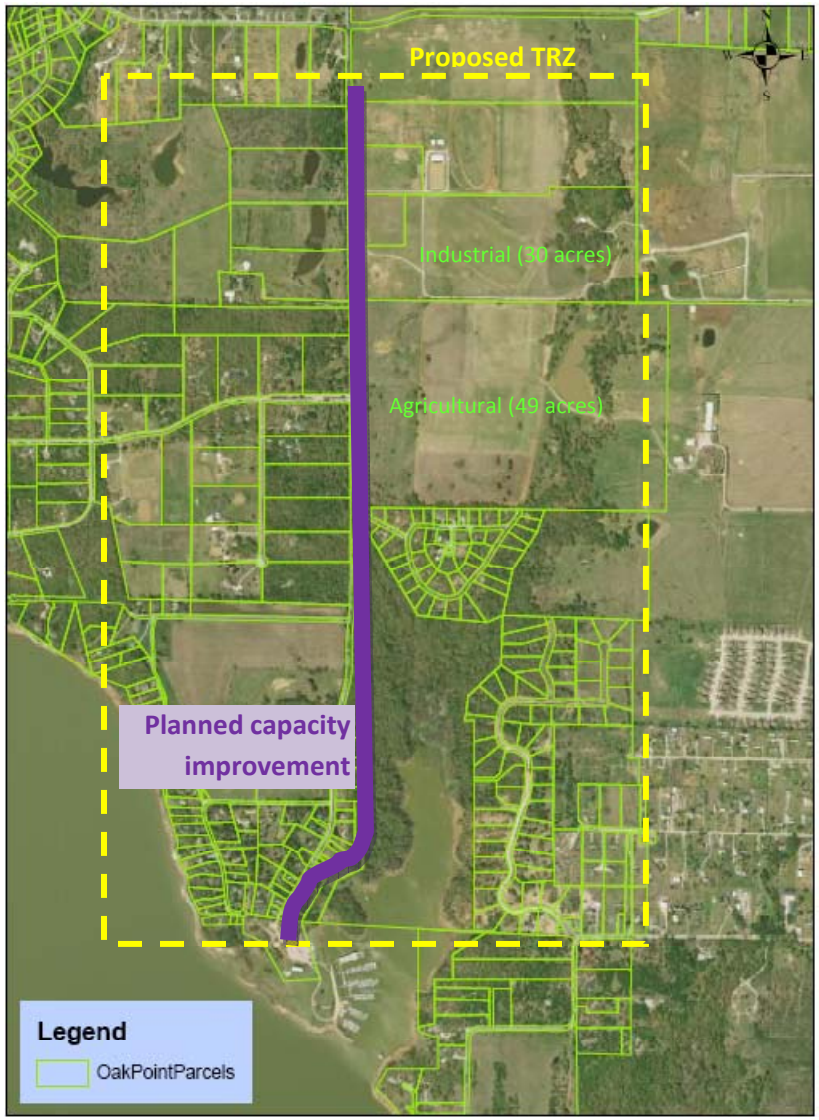


Figure 7. Planned Capacity Improvement in Oak Point, TX.

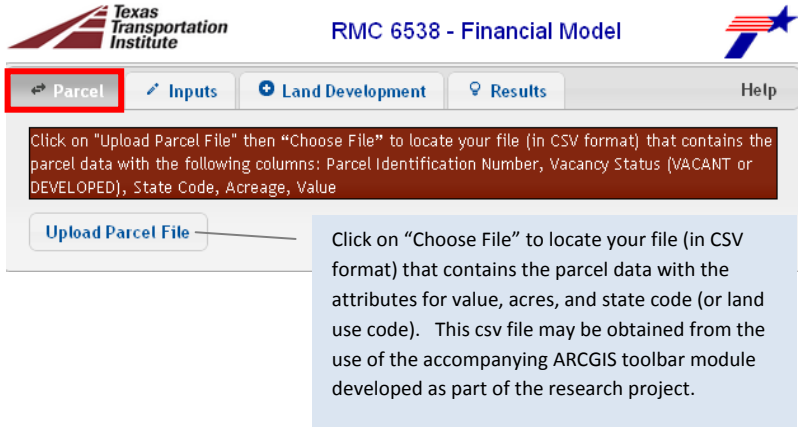
Glossary

Exercise 1: Uploading your parcels

The first step in the TRZ analysis is to select the geographic extent of your TRZ; usually, this includes the parcels of vacant and non-vacant properties in the 1-mile range from the centerline of a capacity improvement, but this range can be adjusted depending on the length of the corridor and the revenue needs.

The parcel data is the first basic input of the financial model and municipalities often have this information in a GIS format.

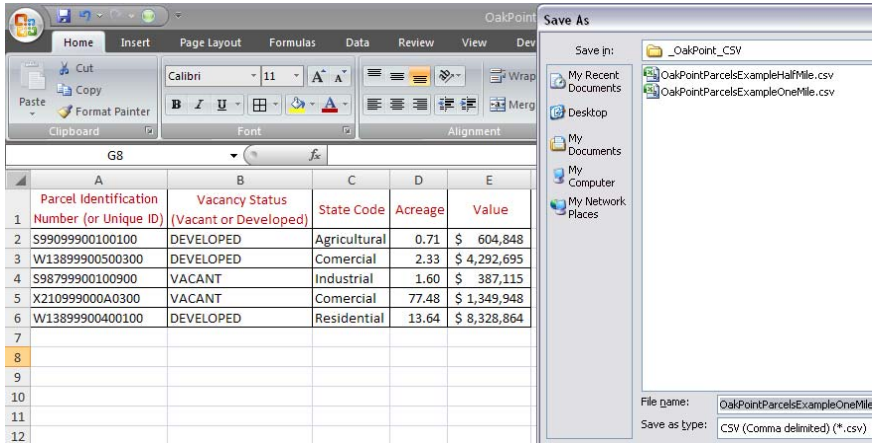
In the case that the GIS-tool developed by TTI is used, the output of the tool automatically generates a CSV file as required.



The model assumes there is no loss in tax base due to right-of-way acquisition—that no major right of way involving significant properties will be involved. If in the uploaded parcels, there will be a significant amount of land loss due to right-of-way acquisition, it is necessary to subtract it from the parcel's area before uploading them.

If the county or municipality doesn't have this information in a GIS format and the GIS-tool developed by TTI cannot be used, a CSV can be manually created in Ms-Excel with the total area of the proposed TRZ for each individual category as desired, with the columns in the following order:

A. Parcel Identification Number or Unique ID,
B. Vacancy Status (VACANT or DEVELOPED),
C. State Code,
D. Acreage,
E. Value.



	A	B	C	D	E
1	Parcel Identification Number (or Unique ID)	Vacancy Status (Vacant or Developed)	State Code	Acreage	Value
2	S99099900100100	DEVELOPED	Agricultural	0.71	$ 604,848
3	W13899900500300	DEVELOPED	Comercial	2.33	$ 4,292,695
4	S98799900100900	VACANT	Industrial	1.60	$ 387,115
5	X210999000A0300	VACANT	Comercial	77.48	$ 1,349,948
6	W13899900400100	DEVELOPED	Residential	13.64	$ 8,328,864

Glossary

Most of the time municipalities already have zoning restrictions for vacant lots (i.e. no heavy industries are allowed near residential zones), and changes in land-use and zoning take place. The tool doesn't model land use or zoning changes, so it is preferable to upload the vacant parcels with the future or planned zoning rather than the actual (i.e. if vacant agricultural land will be developed, should be input as residential, commercial or industrial depending on the planned development).

The Texas Property Tax Assistance Property Classification Guide (http://www.window.state.tx.us/taxinfo/taxforms/96-313.pdf) can provide valuable assistance to determine the real estate property classifications—only real property can be included within the TRZ, tangible personal or business property should be classified as TRZ not-eligible and government property should be classified as totally exempt.

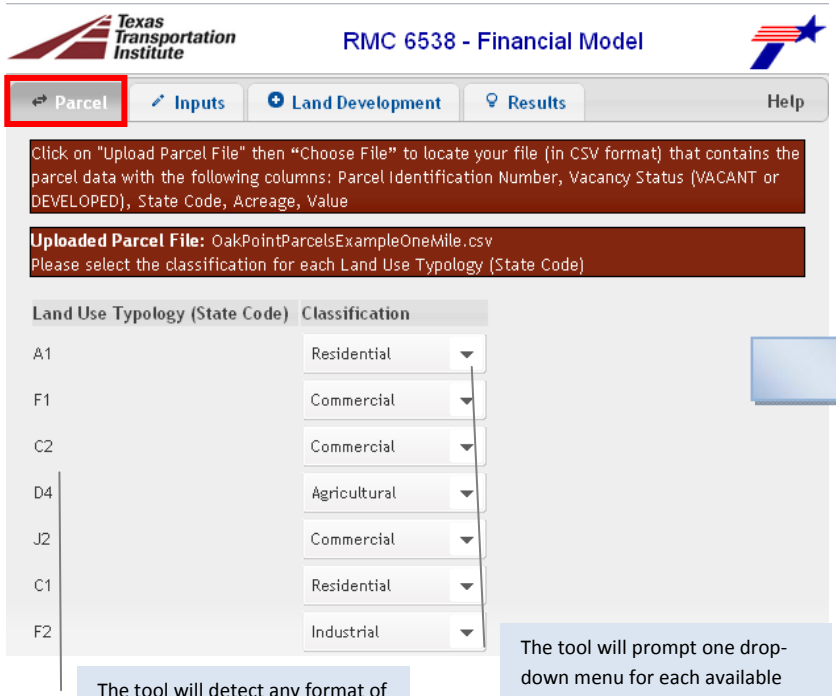
The user must know the planned or existent land use typology or zoning code within the proposed TRZ.

Once the user has uploaded the parcel file, the tool will detect any format of land-use typology (i.e. state code, zoning code, text labels, etc.) assigned in the third column of the uploaded parcel file (in CSV format). The tool will prompt one drop-down menu for each available typology, and the user must assign each typology to one of the 5 real estate categories used by the tool (i.e. Agricultural, Residential, Industrial, or Commercial; the tool automatically disregards TRZ not eligible parcels).

After the user has assigned each typology to one of the 5 real estate categories, as part of a hidden process, the tool will automatically generate a parcel or land inventory grouping the number of parcels, acres, and property values for each of the five real estate categories, as shown in Table 1 for our Oak Point TRZ example.

Glossary

In this example, the proposed TRZ is composed 100 parcels with a total of 683 acres (85 acres developed and 598 acres vacant). The 2010 tax base for this example is $78.7 million ($64.8 developed and $13.9 vacant).



The tool will detect any format of land-use typology (i.e. state code, zoning code, text labels, etc.) assigned in the third column of the uploaded parcel file (in CSV format).

The tool will prompt one drop-down menu for each available typology, and the user must assign each typology to one of the 5 real estate categories used by the tool (i.e. Agricultural, etc.)

Table 1. Parcel Inventory for a Proposed TRZ by Real Estate Classification (hidden process)

2010 Parcels	Developed	Vacant	Grand Total
Raw Land or Agricultural			
Parcel Count		1	1
Sum of Acreage		49	49
Sum of City Net Taxable		-	-
Commercial			
Parcel Count	23	56	79
Sum of Acreage	82	513	595
Sum of City Net Taxable	$ 63,653,472	$ 11,207,073	$ 74,860,545
Industrial			
Parcel Count		1	1
Sum of Acreage		30	30
Sum of City Net Taxable		$ 2,594,602	$ 2,594,602
Residential			
Parcel Count	17	2	19
Sum of Acreage	2.5	5.5	8.0
Sum of City Net Taxable	$ 1,115,581	$ 98,507	$ 1,214,088
Totally Exempt			
Parcel Count			
Sum of Acreage			
Sum of City Net Taxable		$ -	$ -
Total Parcel Count	**40**	**60**	**100**
Total Sum of Acreage	**85**	**598**	**683**
Total Sum of City Net Taxable	**$ 64,769,053**	**$ 13,900,182**	**$ 78,669,235**

Glossary

Exercise 2: Estimating your basic inputs

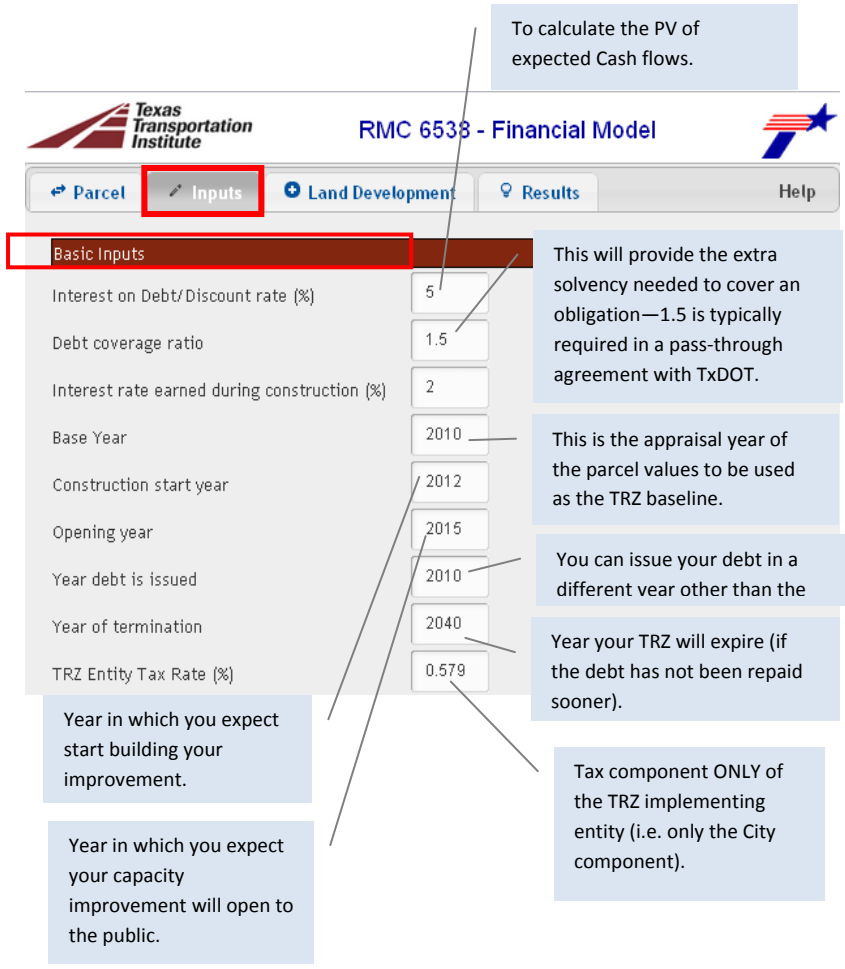
Having decided the geographic extent of your TRZ and uploaded the corresponding parcel or acreage data in CSV format, the next step is to decide what will the basic characteristics of you TRZ or your first TRZ scenario:

- What will be the interest rate on your debt agreement?
- What will be the lifespan of your TRZ, 30-years, 15-years?
- What kind of obligation are you planning; do you expect to issue a bond or to get a loan?
- What interest rate do you expect to earn during the construction period (once you issued your debt, got the funds, but before making any capital expenditures)?
- In what year will the transportation project open to the public?

In cooperation with your financial manager, you have decided that the TRZ revenues will be used to issue a 30 year bond, at a 5% discount rate (or yield to maturity). This bond will be used to finance a new corridor that will start construction in 2012.

Based on a preliminary scope-of-work provided by your engineering department, you expect that it will take 3 years to open the corridor to the public—in 2015.

The corridor will be inside the city limits, so the county has no interest to participate—the implementing agency will be the City of Oak Point only. The tax rate component for the City of Oak Point entity is $0.579 per $ 100 dollars of property value—held constant for the entire analysis period.



The next step is to input your estimated timing of development—years from opening—the capacity improvement.

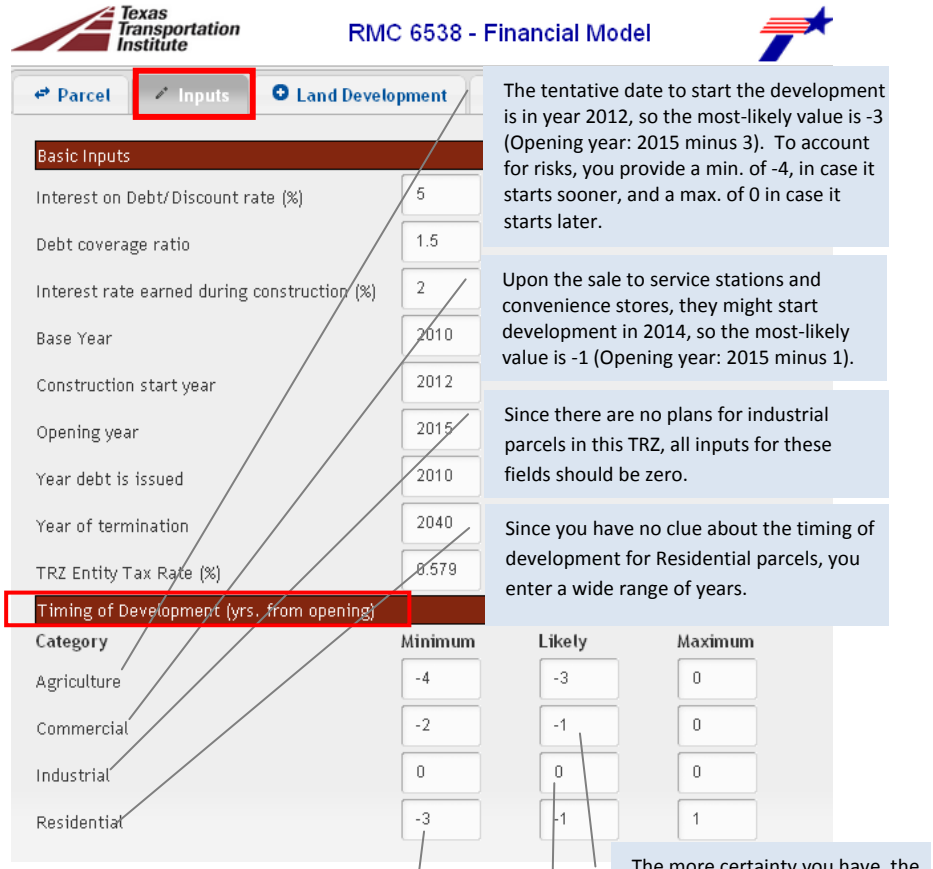
Exercise 3: Timing of development—years from opening

The third step is to estimate the number of years, before or after the opening year of a capacity improvement, when development starts taking place—when vacant land starts turning into non-vacant or developed property.

In the Inputs tab, the Timing of Development (years from opening) allows the user to mark an approximate range of years when the beginning of the development will take place. The tool will start modeling the vacant land development individually for each of the following real estate categories: Agricultural or Raw acreage, Commercial, Industrial, and Residential.

Usually, parcels with commercial and residential land uses tend to develop sooner than agricultural or industrial; however, this is very particular of every situation, contracts, and locations.

In our tutorial example, a developer is interested in buying from the City of Oak Point some agricultural vacant land. In preliminary talks, the developer has told you that he will start construction of some acres in 2012. Similarly, the Economic Development department is in talks with some service stations and convenience stores about possible land sale contracts in the access points of your corridor. The lots of interest are commercial and the tentative year to start building is 2014. You don't plan to have construction in the industrial parcels within this TRZ in the following years. There are some residential vacant lots originally scheduled for construction in 2014; however, because of the economic downturn, the contractor has stopped all works and the start year remains uncertain. You expect it will start sooner rather than later, and not after 2016.



Exercise 4: Estimating the pace of vacant land development

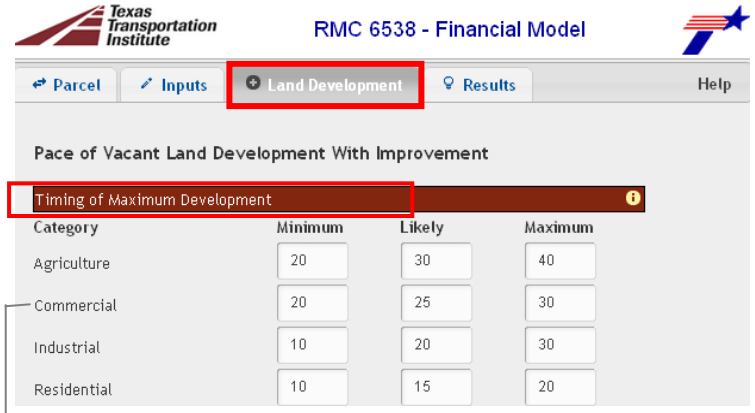
The fourth step is to estimate pace of vacant land development. The tool simulates the pace of development around a capacity improvement using a combination of distribution functions and Monte Carlo Simulation for each category.

The input for the Timing of Maximum Development is an estimate of the number of years required to achieve the complete saturation of the vacant land that was available during the base year. In order to simulate the demand for real estate developments, the tool automatically distributes the Timing of Maximum Development in three phases: slow initial development, then rapid dissemination, and slowly approaching market saturation.

A good rule of thumb (very specific of local aspects of every TRZ—prospective developers, land sales contracts, etc.) is that the greater the amount of vacant land in the base year, the larger the Timing of Maximum Development will be. In our TRZ example, there are 598 acres of vacant land allocated as shown in Table 2: one vacant agricultural parcel with 49 acres, 56 commercial parcels with 513 acres, one industrial parcel with 30 acres, and 2 residential parcels with 5.5 acres. In order to get realistic estimates, one can use an initial rate of development (acres per year) and estimate the number of years it will take to achieve the complete saturation. For example, by developing 2 acres per year it will take 25 years to achieve the complete saturation of commercial parcels, and only 2 years for residential, but as we mention in Exercise 2, there is some uncertainty in this developments, so we increase the number of years to 15 to be conservative. Using the same rate, it would take 15 years to develop the industrial land, but since you don't expect any industrial developments you use 20 years to make the pace of development slower.

Table 2. Vacant Parcel Inventory per Real Estate Category

2010 Parcels	Vacant
Raw Land or Agricultural	
Parcel Count	1
Sum of Acreage	49
Commercial	
Parcel Count	56
Sum of Acreage	513
Industrial	
Parcel Count	1
Sum of Acreage	30
Residential	
Parcel Count	2
Sum of Acreage	5.5
Total Parcel Count	**60**
Total Sum of Acreage	**598**



An initial rate of development (like 2 acres per year) can be used as a starting point to estimate the likely number of years it would take to completely develop the vacant land. From there, one can use min. and max. values, more aggressive or conservative, depending on each particular situation.

For our example, if we develop 2 acres per year of commercial vacant land the most-likely value is 25years to achieve complete saturation. To account for risks, you provide a min. of 10, in case it develops faster, and a max. of 30 in case it develops at a slower rate.

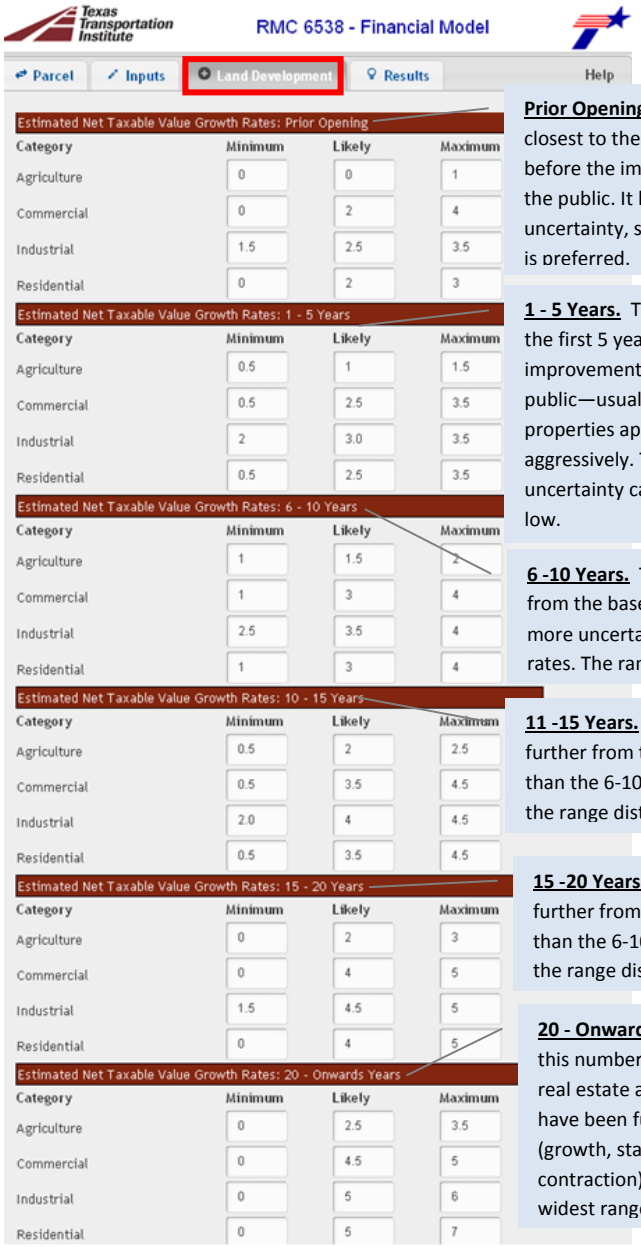
Glossary

Exercise 5: Estimating the Net Taxable Value Growth Rates

Once you have determined what would be the timing of maximum development, the next step is to estimate the growth rates of your net taxable property values. The tool allows you to segregate these estimates by different time periods: Prior Opening [of the transportation project], then in 5 year increments until the 20th year, and a single rate for 20-onwards years. By segregating these estimates, the tool allows you to model different degrees of uncertainty for different time periods—the further the time period, the greater the uncertainty.

Historical databases containing assessed annual property values, as reported by to the State Comptroller's Office, are available upon requests; annual growth rates can be estimated individually for each of the five real-estate categories. Other good indicators of annual growth that can used are (in order of preference): the Annual Growth in the Net Taxable Base, the S&P/Case-Shiller Home Price Index (if available), or the annual GDP growth as the last resource. This growth rates will determine how aggressive or conservative our analysis will be. Since the model accounts for uncertainty using Monte Carlo simulation and other safety factors, it is recommended to use aggressive values in the further periods.

As a cautionary note, the growth rates used for each timing period must be consistent with the regional real estate and economic cycles and trends, and with the number of years of the life of the TRZ (the Base year minus the Year of termination).



Prior Opening. This period is the closest to the base year, but before the improvement opens to the public. It has less degree of uncertainty, so a narrower range is preferred.

1 - 5 Years. This period consider the first 5 years after the improvement opens to the public—usually when the properties appreciate more aggressively. The degree of uncertainty can be considered still low.

6 -10 Years. This period is further from the base year, so it carries more uncertainty in the growth rates. The range should be wider.

11 -15 Years. This period is further from the opening year than the 6-10 Years in time, so the range distribution is wider.

15 -20 Years. This period is further from the opening year than the 6-10 Years in time, so the range distribution is wider.

20 - Onwards Years. Usually, by this number of years, national real estate and economic cycles have been fully completed (growth, stabilization, and contraction). This should be the widest range of the analysis.

Glossary

Exercise 6: Estimating the Remaining Undeveloped (residual vacant)

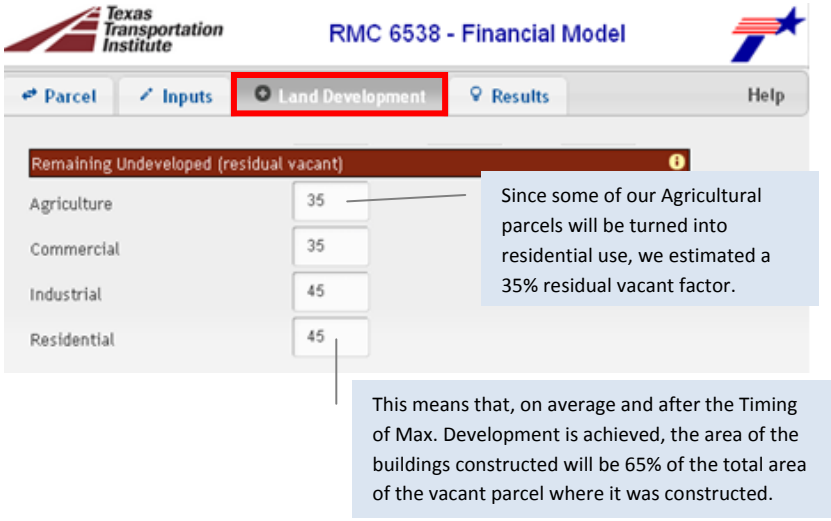
This series of inputs will help you to assume the amount of land that will be used for the actual buildings, and to estimate the amount of land that will remain vacant after reaching the Timing of Maximum Development is achieved.

Vacant land remains undeveloped either because a parcel remains undeveloped or due to subdivision. Statistical data can be estimated from the size of the buildings constructed on each lot, and calculating the average per real estate category. However, this might be a tedious process. Some municipalities have administrative codes or ordinances, where they state that a specific business, industry, or house, must have x-number of square feet in addition to the size of the building; in other words, you cannot build a facility larger than a specific percentage of the size of your lot.

The higher the number used, the more conservative your final estimate will be (you will be developing less land).

Good rules of thumb in the industry ranges are provided below:

- Agricultural: If it remains Agricultural 100%-95%; if it's expected to turn into other kind of development, see values below.
- Commercial: 60%-45%
- Industrial: 50%-35%
- Residential: 45%-15%



Our next step is to get the results of our first TRZ scenario.

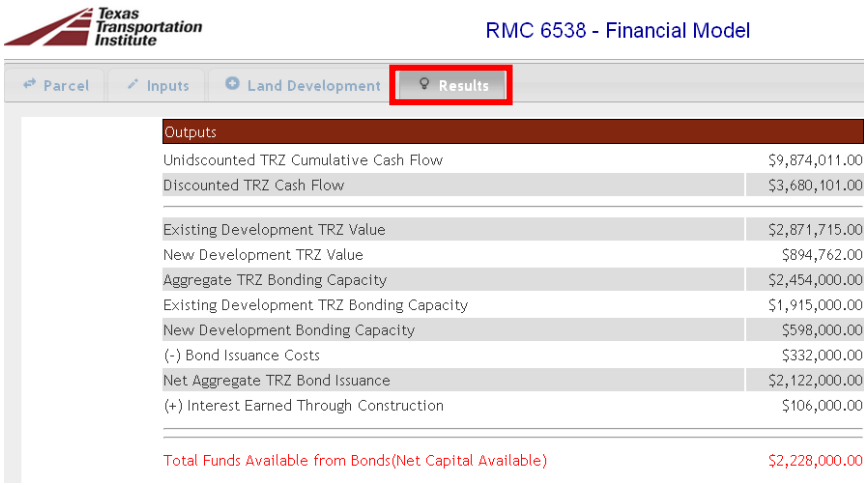
Glossary

Exercise 7: Results and Interpretation

As mentioned earlier, the objective of TRZ Revenue Feasibility Tool is to assist you decide whether pursue or not the implementation of a TRZ before hiring an expensive consultant.

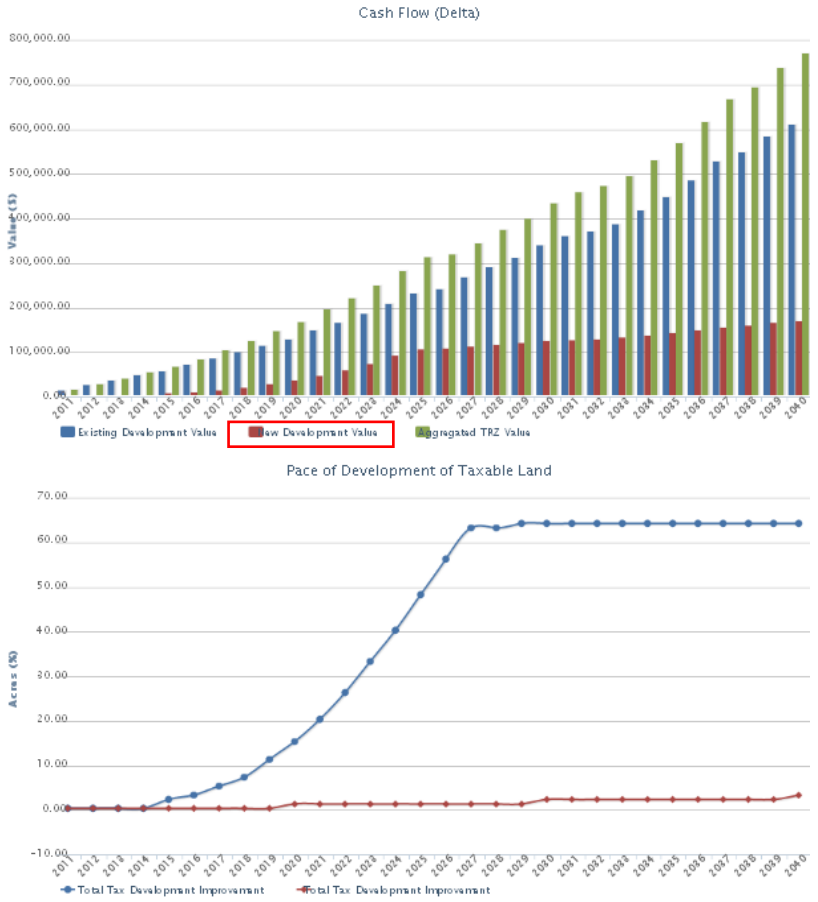
Numerical results from the tool include the following: Undiscounted TRZ Cumulative Cash Flows, TRZ Borrowing Capacity in Base Year, Existing Development Present Value, New development present value, Interest Earned during Construction, and Net Capital Available from a specific TRZ.

For the first scenario of our tutorial example, the Total funds Available from Bonds, or Net Capital Available, add up to $ 2. 228 million. This is for a 1-mile buffer with 85 developed acres and 598 vacant acres; using 5% discount rate, and the rest of the parameters as illustrated through the previous exercises.



Outputs	
Unidscounted TRZ Cumulative Cash Flow	$9,874,011.00
Discounted TRZ Cash Flow	$3,680,101.00
Existing Development TRZ Value	$2,871,715.00
New Development TRZ Value	$894,762.00
Aggregate TRZ Bonding Capacity	$2,454,000.00
Existing Development TRZ Bonding Capacity	$1,915,000.00
New Development Bonding Capacity	$598,000.00
(-) Bond Issuance Costs	$332,000.00
Net Aggregate TRZ Bond Issuance	$2,122,000.00
(+) Interest Earned Through Construction	$106,000.00
Total Funds Available from Bonds(Net Capital Available)	$2,228,000.00

As you see in the following graphs, from the Results tab as well, you discover that the cash flow originated by the New Development (the Red bars in the graph) is significantly less than the one generated by the Existing Development. You just realized that you were too conservative in your assumptions of Timing of Maximum Development (i.e. the pace of development is occurring too slowly) given the large number of vacant acres in this proposed TRZ.



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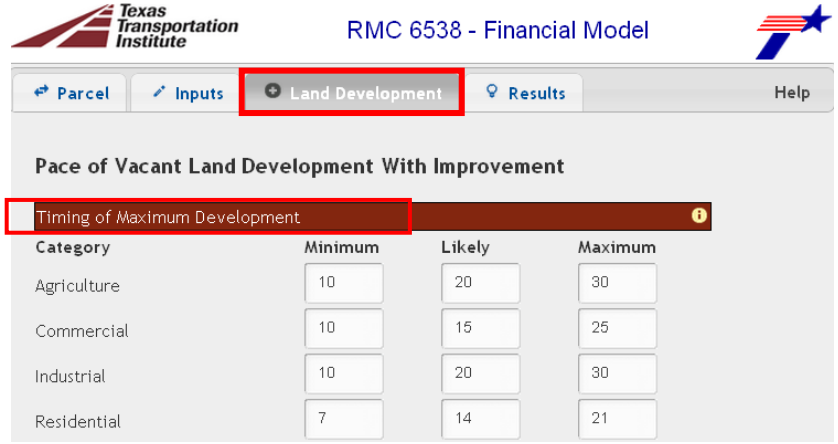
Exercise 8: Creating Scenarios

Once you got your first scenario completed, the tool will facilitate the creation of different scenarios by saving the inputs used the last time (if your browser has allowed cookies).

Since you suspect that you were too conservative in your assumptions of Timing of Maximum Development, you go back change your original assumptions for more aggressive ones (i.e. the pace of development is occurring faster than in our first scenario). Now all the vacant land that was available during the base year gets developed within the life of the TRZ—the TRZ captures all the new development.



For the second scenario, the Total funds Available from Bonds, or Net Capital Available, add up to $ 14. 086 million. This is for a 1-mile buffer with 85 developed acres and 598 vacant acres in the base year; using 5% discount rate, and the rest of the parameters as illustrated through the previous exercises and the Timing of Maximum Development just mentioned.

The cash flow originated by the New Development (the Red bars in the graph) is significantly more than the one generated by the Existing Development. You just realized that you were too aggressive in your assumptions of Timing of Maximum Development.

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With these two previous scenarios you can have a lower bound and an upper bound to establish the limits of your Pessimistic and Optimistic scenarios. By using the midpoint values of these two previous scenarios to create a third one, you can confidently generate your Most-Likely Scenario. Similarly, by changing other parameters like the Discount Rate, you can test the sensibility of each variable and its impact on the final TRZ value. One last option to create different scenarios is to input a TRZ with different size, and leave the rest of the parameters the same.

As stated earlier the objective of the tool is not to provide with a single final value, but rather with results of optimistic, most-likely, and pessimistic conditions. For example, if most of the scenarios you have developed show poor results, it is not recommended to pursue a TRZ implementation; on the other hand, if even your pessimistic scenarios show positive results, implementation of a TRZ should be further explored and pursued.

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Base Year. Year set up as the baseline for assessing increments over the duration of the TRZ. The baseline includes the parcel inventory with the acres and appraisal values for vacant and non-vacant land.

Bond Issuance Costs. The underwriting, legal, and administrative fees required to issue debt. These fees are significant when issuing bonds; however, other types of debt, such as bank loans, are cheaper to issue because they require less underwriting, legal, and administrative support.

Construction Start Year. Year in which you expect to start building your capacity improvement or transportation project.

Debt Coverage Ratio. Measurement of the extra solvency needed to cover an obligation—1.5 is typically required in a pass-through agreement with TxDOT—TRZ's annual income divided by an annual debt service.

Discounted TRZ Cash Flow. TRZ cash flows reduced by any interest charges or the discount rate/present value of TRZ cash flows.

Existing Development. Land within the TRZ that was already developed during the base year.

Interest Earned Through Construction. Interest rate earned during the construction period (once you issued your debt, got the funds, but before making any capital expenditures).

Interest on Debt/Discount rate (%). Cost of capital or interest charges on the obligation issued/rate used to bring future cash flows to the base year when estimating the Net Present Value.

Interest Rate Earned During Construction (%). Rate of the interest earned during construction period, which usually equals capitalized interest.

Minimum, Likely, and Maximum. Lower limit, mode, and upper limits used in a triangular distribution.

New Development. Land within the TRZ that was vacant during the base year, but that the model assumes get developed according to the parameters of the Pace of Vacant Land Development.

Opening Year. Year the proposed capacity improvement will open to the general public.

Pace of Vacant Land Development. The pace of absorption or the timing of vacant land conversion to developed uses.

State Code (State Property Tax Board Code, or SPTB). Real property land-use classification code, as used by the State Comptroller in Texas.

TRZ Entity Tax Rate (%). Tax rate of the agency implementing the TRZ (a county or a municipality) per $ 100 dollars of property value; it is held constant for the entire analysis period.

Undiscounted TRZ Cumulative Cash Flow. TRZ cash flows before reduction for any interest charges.

Year debt is issued. Year the implementing agency issue the obligation.

Year of Termination. Year the TRZ expires if the obligation has not been met before such year.