

Multi Resolution Modeling Case Study 1

Streamlining Transportation
Investment District Evaluation

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Benefits of Multi Resolution Modeling

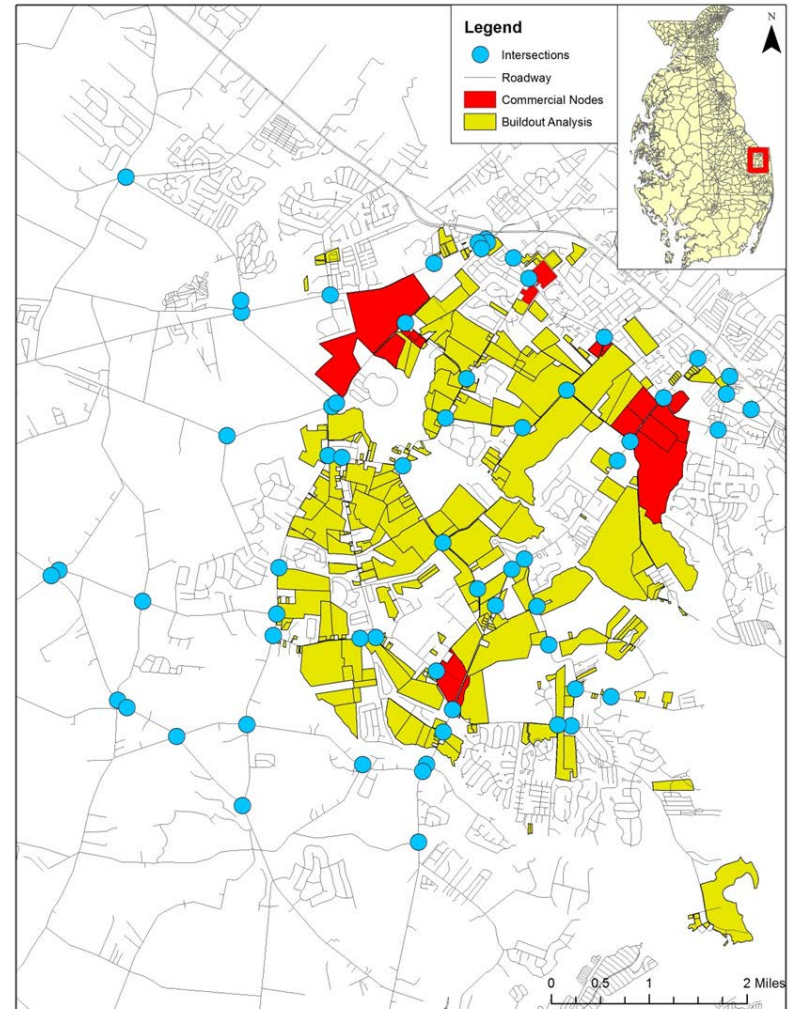
- Ability to answer detailed questions quickly and efficiently
- Puts details and emphasis on areas where data is robust (Significant Digits)
- Computationally efficient – streamlines approach to reduce run-time which allows exploratory modeling
- Reproducible results
- Less dependent on personal preferences

Project Overview

- DeIDOT has legislation supporting the creation of Transportation Improvement Districts which allows the DOT to develop a set of transportation improvements that will meet the needs of the expected development.
 - Costs are then shared between the developers and DeIDOT
 - Avoids the need for Traffic Impact Studies
- Scenario Planning
 - Average Day versus Peak Season
 - No-Build Land Use versus Build Land Use
 - With and Without Transportation Investments

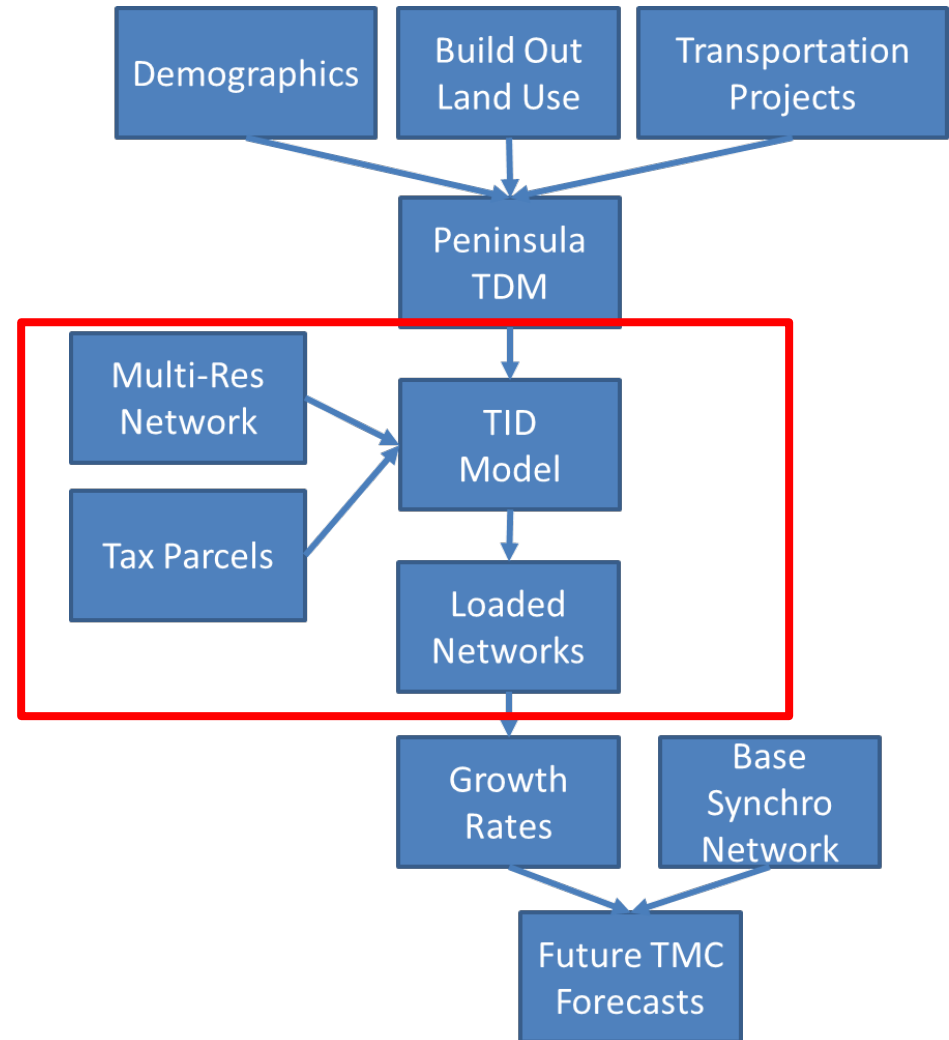
Challenges

- Issue of Geographic Resolution to support the analysis
 - Scale of Developments: need ability to analyze parcel level changes to land use
 - Project detail including intersection improvements, connectivity projects, and other small operational improvements

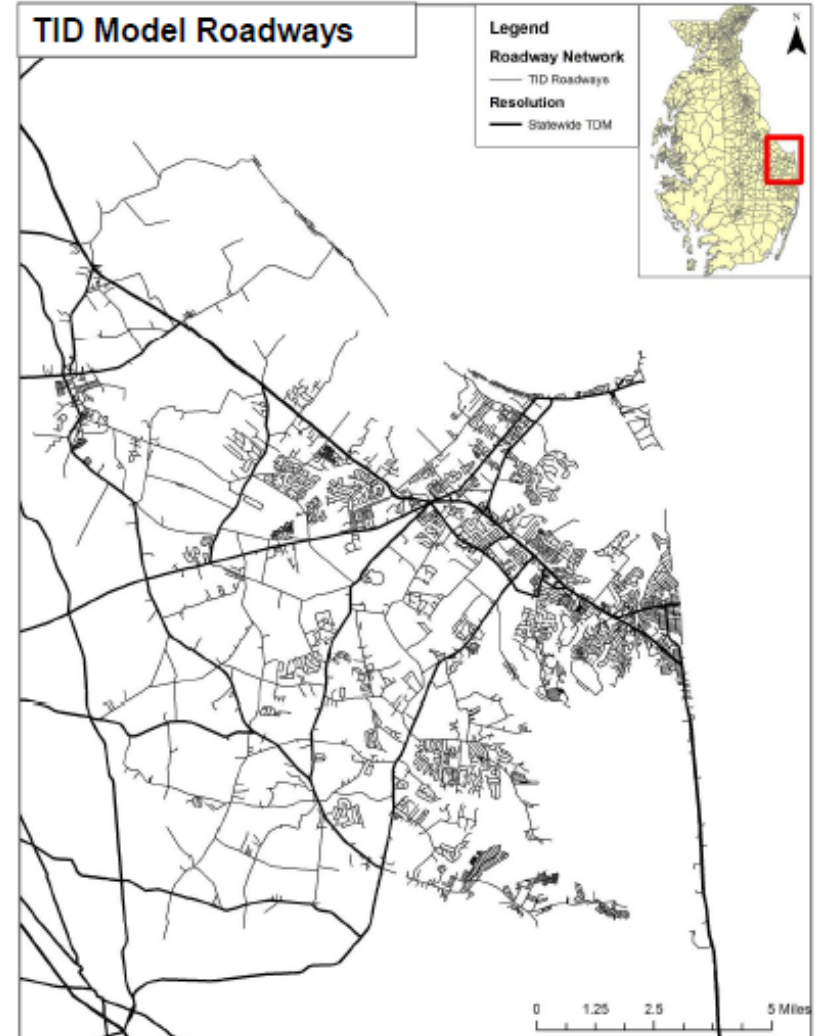


Multi Resolution Framework

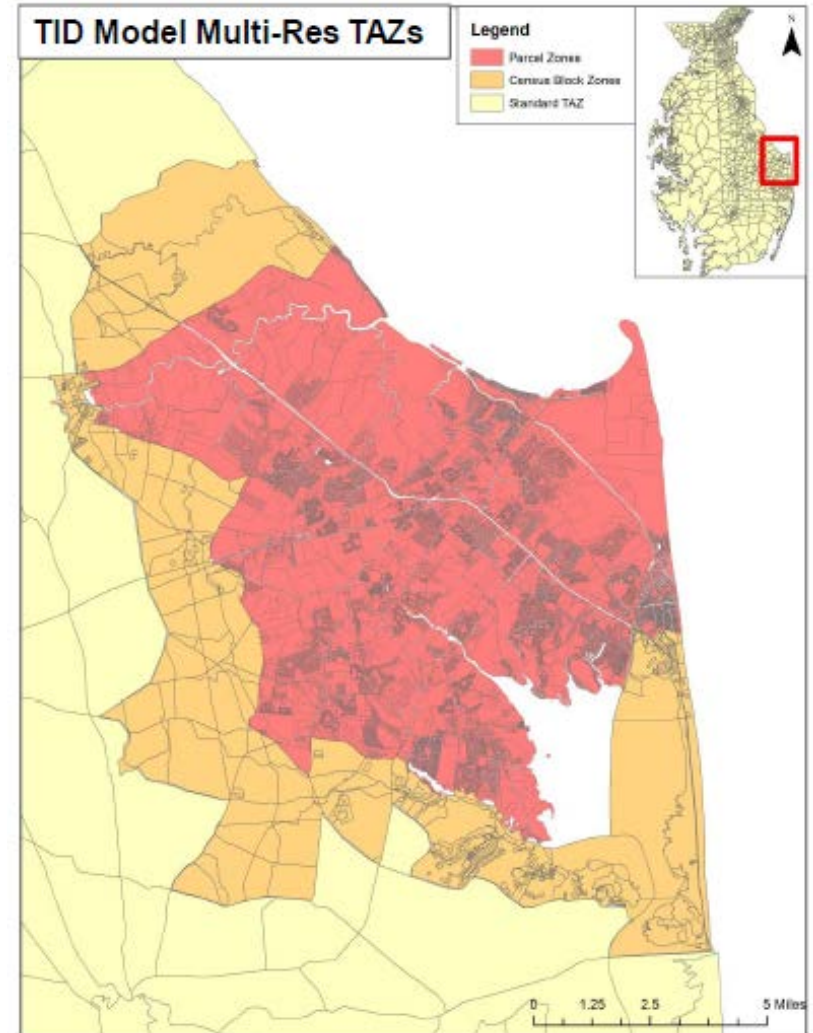
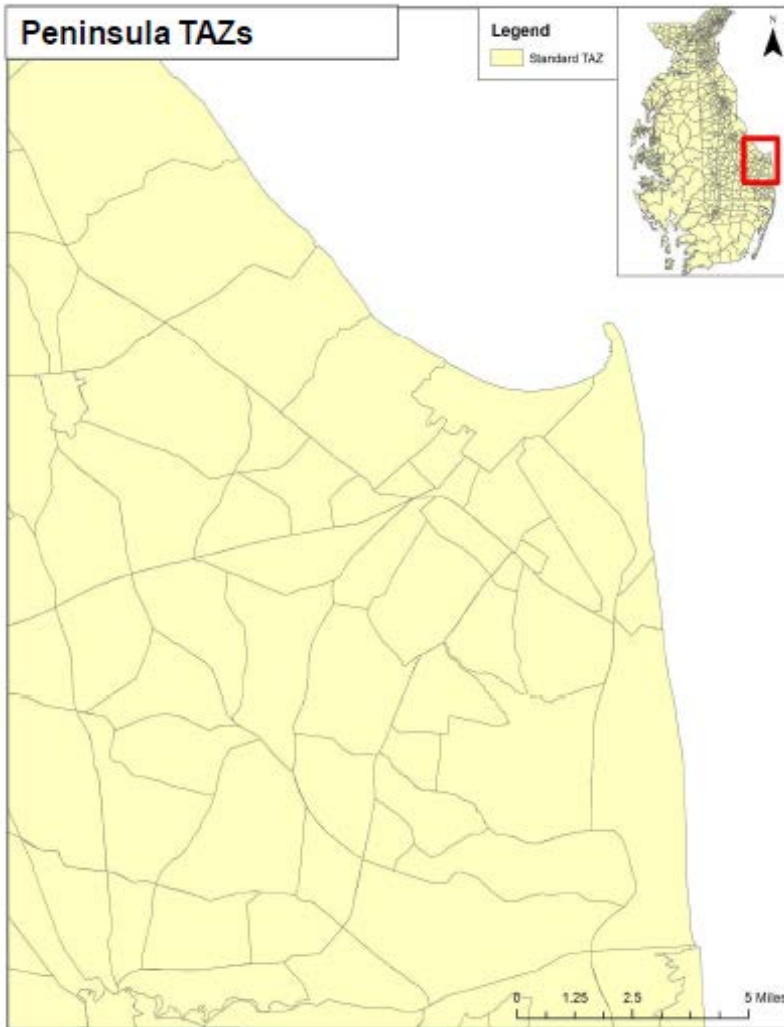
- Disaggregation of PEN Trip Tables
 - High resolution land use (residential and employment)
- Assignment to corresponding highway network
- Provide output to support operational analysis



Multi Resolution Framework



Multi Resolution Framework



Conclusion

- Able to determine impacts of specific developments at the parcel level
- Able to determine impacts on intersections, internal circulation roads, roadway re-alignments in addition to traditional roadway widening and new roadways
- Able to communicate the impacts to technical and non-technical audience
- Able to use scenario planning and evaluate multiple transportation and land use scenarios relatively quickly