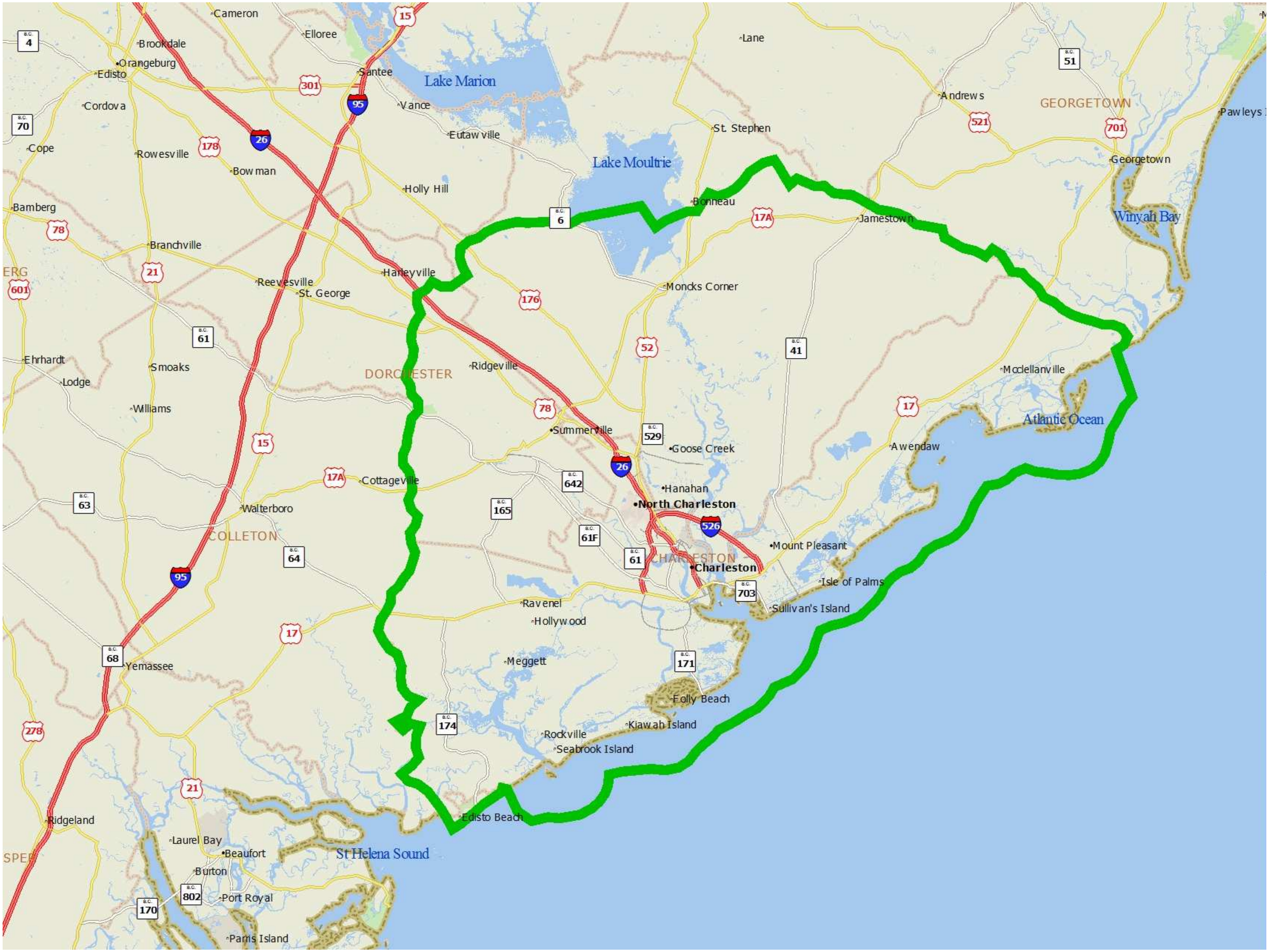
TAZ Forecasting Tool

BCDCOG Travel Demand Model

Charleston, SC

Clearbox Forecast Group/Kimley-Horn

June 10th, 2010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Summerville
Goose Creek
Atlantic Ocean
Awendaw
Cottageville
Hanahan
North Charleston
Walterboro
COLLETON
CHARLESTON
Charleston
Mount Pleasant
Isle of Palms
Sullivan's Island
Ravenel
Hollywood
Yemassee
Meggett
Folly Beach
Kiawah Island
Rockville
Seabrook Island
Edisto Beach
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Purpose of the TAZ Forecasting Tool

- Does not forecast Households and Employment by TAZ
- Disaggregates future year households into cross-classification bins (Household Size vs. Workers vs. Autos)

Purpose of the TAZ Forecasting Tool

- Create Interim Year TAZ Databases
- Review/Edit TAZ data for base/interim/future years simultaneously

Why HH Disaggregating is needed for BCDCOG

- Base Year Household Data is from CTPP, not disaggregation curves
- Better reflects characteristics of area than curves (large retirement population, diverse communities)
- Future growth can use a different growth profile than existing development in a TAZ

Household Cross-Class Bins

- Workers vs. Household Size vs. Autos Available
- 17 Categories

WK0_HH1_V0	WK1_HH2_V1
WK0_HH2_V0	WK1_HH3_V1
WK0_HH1_V1	WK1_HH4_V1
WK0_HH2_V1	WK2_HH2_V1
WK0_HH3_V1	WK2_HH3_V1
WK0_HH4_V1	WK2_HH4_V1
WK1_HH1_V0	WK3_HH3_V1
WK1_HH2_V0	WK3_HH4_V1
WK1_HH1_V1	

Why HH Disaggregating is needed for BCDCOG

- Previously, existing TAZ stratification was just scaled to new total, which causes….
- Problems forecasting in sparsely populated zones
- Tool more accurately reflects the changes in TAZ households over time

How HH Disaggregating is done for BCDCOG

- Existing Households use existing Profile from CTPP
- New Households use input Land Use Profiles
- Existing and New Households are combined to create Future Year TAZ Totals

Disaggregation Comparison

- BCDCOG

Need:

1 - HH

2 - Land Use Profile

- Joint Disaggregation

Need:

1 - HH

2 - Population

3 - Income, Vehicles, and/or Workers

Disaggregation Sample

- Assumptions for zones with heavy growth has a large impact on resulting trip pattern

"Scale Up" Methodology

TAZ 1	TOTAL HH	WK0_HH1	WK0_HH2	WK1_HH1	WK1_HH2
Existing	40	15	15	5	5
New	400	150	150	50	50
Total Future	440	165	165	55	55

"Profile" Methodology

TAZ 1	TOTAL HH	WK0_HH1	WK0_HH2	WK1_HH1	WK1_HH2
Existing	40	15	15	5	5
New	400	50	65	150	135
Total Future	440	65	80	155	140

Land Use Profiles

- Any number of profiles can be used to characterize future growth, can easily be refined/adjusted later

GPATS (Greenville SC)

1. SF Urban Low Density
2. SF Urban Med Density
3. SF Urban High Density
4. MF Urban Med Density
5. MF Urban High Density
6. Urban Planned Residential
7. Urban Non Residential
8. SF Suburban Low Density
9. SF Suburban Medium Density
10. SF Suburban High Density
11. MF Suburban Med Density
12. MF Suburban High Density
13. Suburban Planned Resident
14. Suburban Non Residential
15. Rural

BCDCOG

1. CBD/Historic
2. Urban
3. Suburban
4. Rural
5. Beach

Land Use Profiles

- Profiles are developed for each area type based on existing local CTPP data (weighted average)

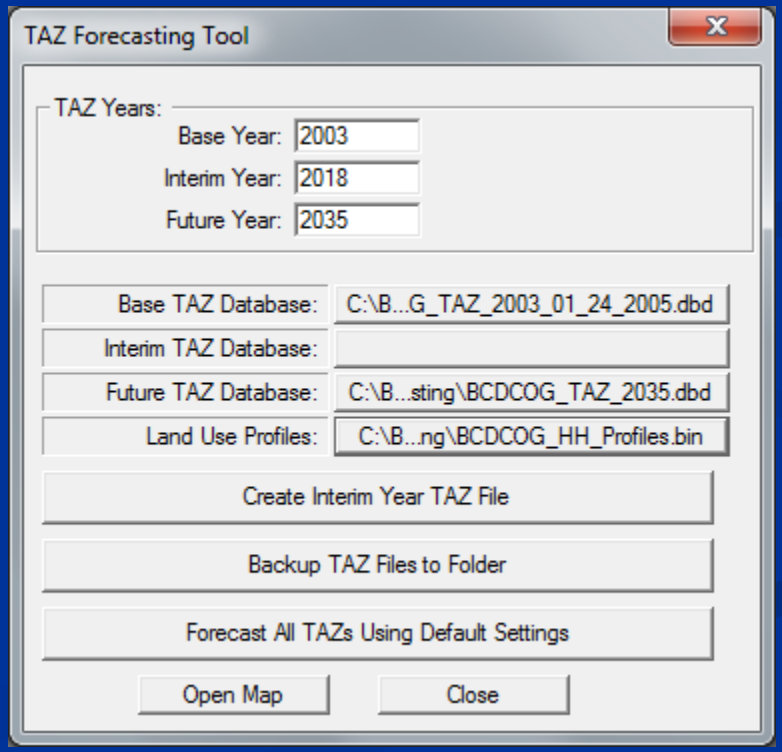
PROFILE	PROFILE_TXT	WK0_HH1_V0	WK0_HH2_V0	WK0_HH1_V1	WK0_HH2_V1	WK0_HH3_V1	WK0_HH4_V1	WK1_HH1_V0	WK1_HH2_V0	WK1_HH1_V1	WK1_HH2_V1	WK1_HH3_V1	WK1_HH4_V1	WK2_HH2_V1	WK2_HH3_V1	WK2_HH4_V1	WK3_HH3_V1	WK3_HH4_V1
1	CBD	3.4%	0.8%	11.6%	8.1%	0.9%	0.8%	1.0%	2.2%	16.7%	11.1%	5.6%	3.9%	15.5%	8.1%	5.6%	2.0%	2.6%
2	Urban	6.3%	1.5%	12.2%	7.1%	1.0%	0.7%	1.9%	2.3%	22.3%	10.1%	4.7%	2.7%	14.2%	5.5%	4.1%	1.6%	1.8%
3	Suburban	1.5%	0.4%	8.9%	8.7%	0.9%	0.5%	0.6%	1.9%	19.2%	12.2%	5.1%	3.8%	18.0%	8.5%	5.8%	1.7%	2.4%
4	Rural	8.0%	2.2%	12.5%	5.0%	1.2%	0.9%	2.2%	3.7%	25.4%	9.0%	4.6%	2.1%	12.0%	4.6%	3.1%	1.4%	2.1%
5	Beach	5.2%	2.6%	10.7%	6.1%	0.9%	0.7%	3.6%	2.1%	27.3%	8.5%	4.4%	2.5%	14.2%	4.1%	3.6%	2.1%	1.5%

Inputs to the TAZ Forecasting Tool

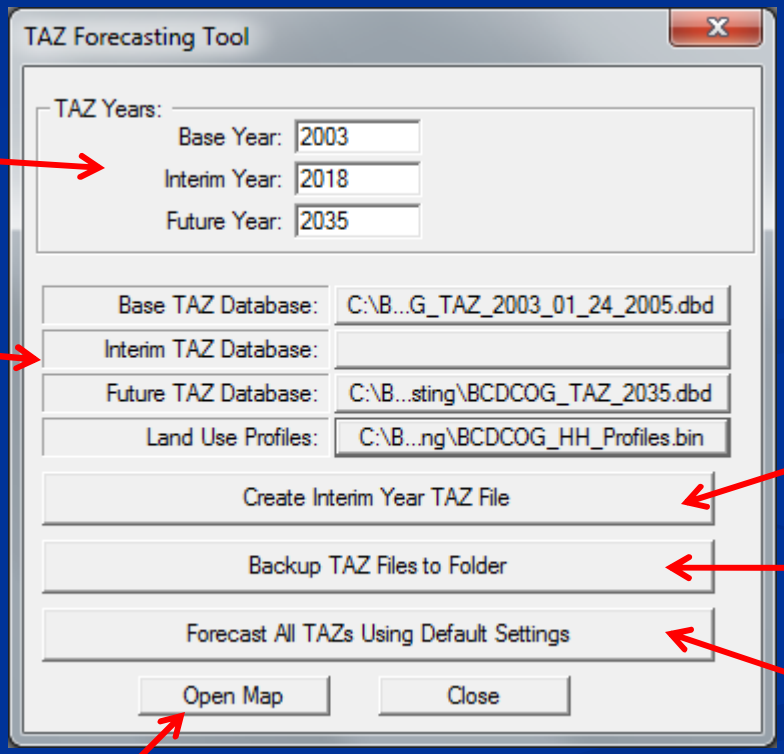
- Households by TAZ (base and future)
- Employment by TAZ (base and future)
- Land Use Profiles for HH cross-class disaggregation

Using the TAZ Forecasting Tool

- Tool is a Utility than can be called by the Model Interface



Using the TAZ Forecasting Tool



Model Years

Database Files

Create an Interim Year Database

Backup Files

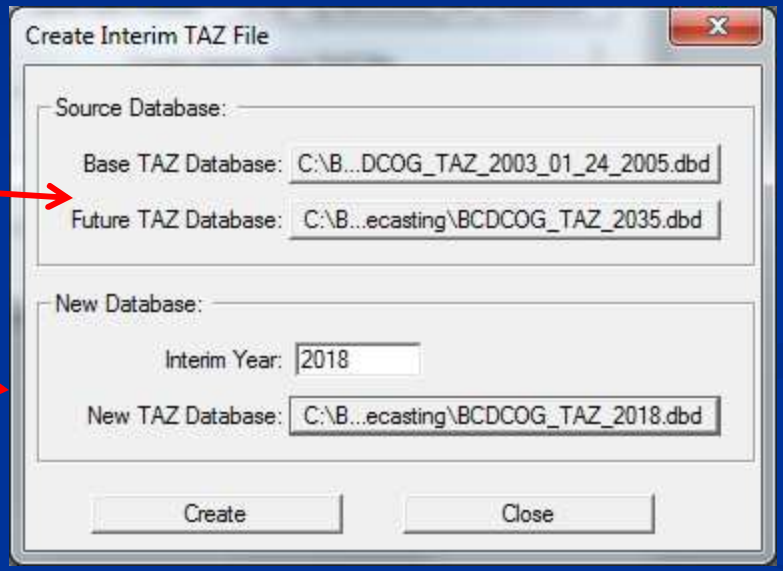
Disaggregate Data

View/Modify Data for Individual TAZs

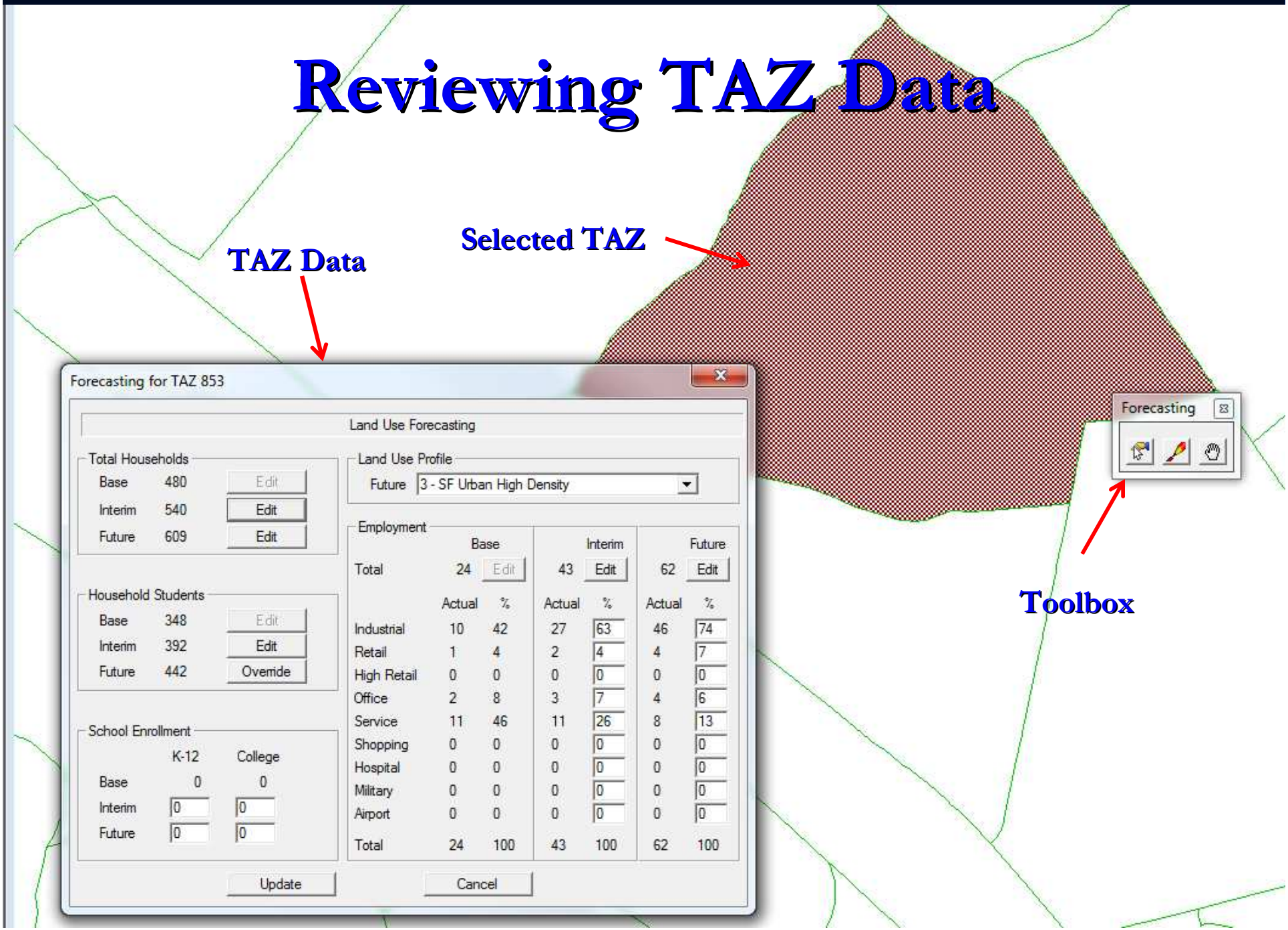
Creating Interim TAZ Files

Source TAZ Files

Output File



Reviewing TAZ Data



Demonstration Time….

Possible Future Updates (Wishlist)

- Handle multiple interim years
- Refined land use profiles
- Manage all forecasting (Regional and TAZ control totals)
- Add Employment Profiles (commercial areas, mixed use, etc.)

Thanks go to….

- Cindy Johnson, formerly Kimley-Horn
- Tim Padgett, Kimley-Horn

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