Technical Appendix:

Other Scenario Model Outputs

Scenario model outputs measure the impacts of new development and changes in land use across the region. Each Development Type includes a range of information about its component buildings, streets, and open spaces, and these attributes facilitate the measurement of a broad range of variables. The following is a list of the scenario model outputs calculated by the Project Team (excluding fiscal impact model outputs, which are described separately in the Fiscal Impact Tool section of the Technical Appendix):

Current Land Use

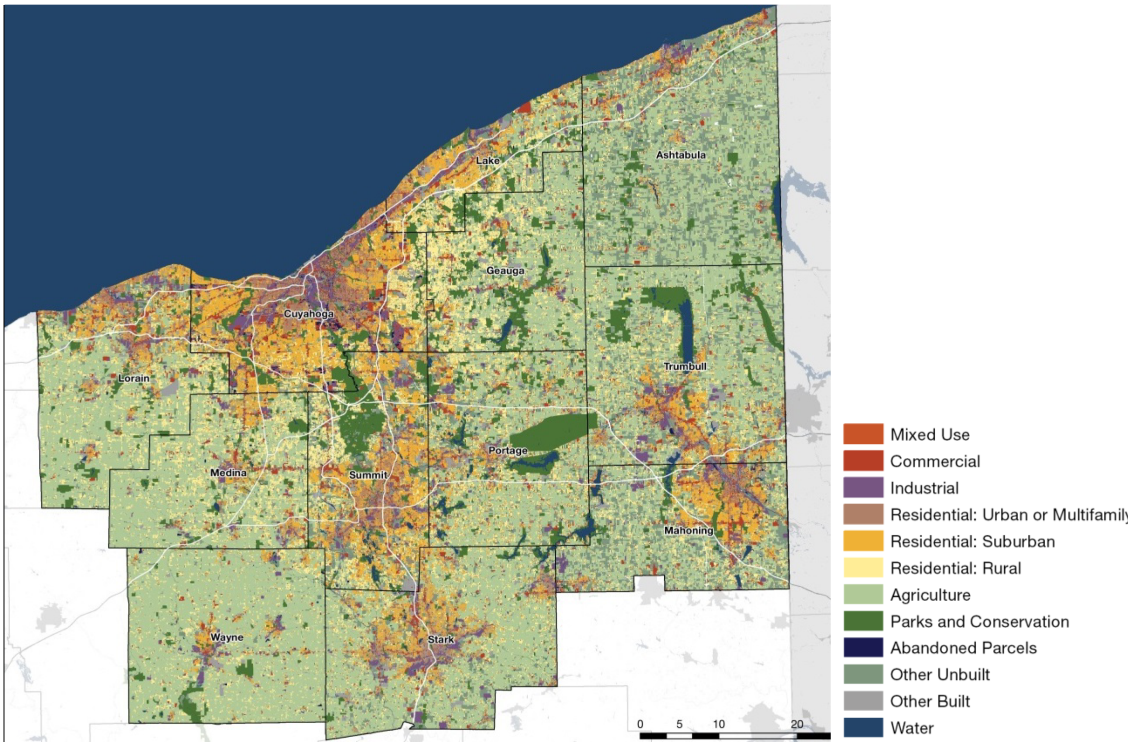
Data inputs: current parcel land use (source: NEOSCC with updates by the Sasaki Team)

Data for all parcels in the region was compiled by NEOSCC. The Project Team made minor updates to parcel land uses to add information for parcels that were missing land use descriptions (primarily in Wayne County). The Project Team added a new category of simplified land use classifications: mixed-use, commercial, industrial, residential: urban or multifamily, residential: suburban, residential: rural, agriculture, parks and conservation, abandoned parcel, other unbuilt, other built, and water. Parcels with no description or areas of the region that were not within parcels (like many road rights-of-way) were classified as unknown or not classified.[18]

These simplified categories were the basis of all land use mapping and reporting. Areas for each land use type were calculated across the region as a whole.

18 See Land Use Categories in the Scenario Modeling Process section of the Technical Appendix for descriptions of these categories and the methodology for categorizing land uses.

Current Land Use Map



Current Land Use Composition		
	Acres	**Percent**
Unknown / not classified	123,250	3%
Abandoned	1,474,280	1%
Other Built	96,430	5%
Mixed Use	82,370	0%
Industrial	1,080	2%
Commercial	185,630	3%
Residential: Urban or Multifamily	655,750	3%
Residential: Suburban	321,940	6%
Residential: Rural	525,700	14%
Parks and Conservation	217,620	8%
Other Non-Built	129,270	17%
Agriculture	27,170	38%

Future Land Use

Data inputs: current parcel land use (NEOSCC with updates by the Sasaki Team) and future scenario land uses (Sasaki Team)

Future scenarios are comprised of Development Types allocated across the region. To determine the future land use composition of the region, Development Types were classified into equivalent land use types according to the following table:

Development Types & Equivalent Land Uses

Development Type	Land Use
Downtown Residential Neighborhood	Residential: Urban or Multifamily
University / College Town District	Mixed Use
Mixed – Income Neighborhood	Residential: Urban or Multifamily
Suburban Multi-Family Neighborhood	Residential: Urban or Multifamily
Compact Residential Neighborhood	Residential: Urban or Multifamily
Suburban Subdivision	Residential: Suburban
Senior Living Community	Residential: Urban or Multifamily
Rural Residential Development	Residential: Rural
Transit Oriented District	Mixed Use
Downtown Commercial Core	Commercial
Western Reserve Town Centers	Mixed Use
Neighborhood Main Street	Mixed Use
Lifestyle Center / Mall District	Commercial
Arterial Commercial District	Commercial
New Town Center	Mixed Use
Business / Commerce Districts	Commercial
Corporate Campuses	Commercial
Medical / Institutional Centers	Other Built
Light Industrial Business Park	Industrial
Heavy Industrial Development	Industrial
Abandonment: 35%	35% of developed area abandoned; 65% of developed area remains current land use
Abandonment: 55%	55% of developed area abandoned; 45% of developed area remains current land use
Open Space	Parks and Conservation

The future acreage of each land use type was calculated using the following formula:
Future land use acres = Existing land use acres + Acres of new development – Acres redeveloped – Acres Conserved – Acres Abandoned

For instance, to determine the future amount of urban residential, the Project Team started with the current area of urban residential, added the areas of new urban residential developments, subtracted the areas of any current urban residential areas redeveloped in the scenarios (as a mixed-use building, for instance), and subtracted the area of urban residential that was abandoned. Any urban residential conserved would also be subtracted (although in reality, urban residential was highly unlikely to be converted to conservation or park land).

Overall land use composition was determined by dividing the area of each land use by the total area of the region.

Land Use Composition

	Current	Trend	Grow the Same	Do Things Differently	Grow Differently
Unknown / not classified	3%	3%	3%	3%	3%
Abandoned	1%	2%	1%	1%	1%
Other Built	5%	5%	5%	5%	5%
Mixed Use	0%	0%	0%	0%	0%
Industrial	2%	2%	2%	2%	2%
Commercial	3%	2%	3%	2%	2%
Residential: Urban or Multifamily	3%	3%	3%	3%	3%
Residential: Suburban	6%	7%	8%	6%	7%
Residential: Rural	14%	14%	15%	13%	13%
Parks and Conservation	8%	12%	12%	16%	14%
Other Non-Built	17%	15%	14%	15%	15%
Agriculture	38%	35%	34%	35%	35%

Additional Land Use Information

	Existing acres	Trend				Grow the Same				Do Things Differently				Grow Differently			
		2040 acres	New Dev Acres	New Dev Acres Composition	Percent change 2010 to 2040	2040 acres	New Dev Acres	New Dev Acres Composition	Percent change 2010 to 2040	2040 acres	New Dev Acres	New Dev Acres Composition	Percent change 2010 to 2040	2040 acres	New Dev Acres	New Dev Acres Composition	Percent change 2010 to 2040
Unknown / not classified	123,252	123,252	-	0%	0%	123,252	-	0%	0%	123,252	-	0%	0%	123,252	-	0%	0%
Agriculture	1,474,278	1,358,979	-	0%	-8%	1,311,007	-	0%	-11%	1,332,866	-	0%	-10%	1,350,110	-	0%	-8%
Commercial	96,433	94,015	5,169	6%	-3%	103,376	11,275	6%	7%	92,075	1,344	7%	-5%	95,076	3,323	4%	-1%
Industrial	82,369	82,412	6,460	7%	0%	90,204	10,853	6%	10%	80,296	2,383	12%	-3%	85,709	7,128	9%	4%
Mixed Use	1,075	1,222	276	0%	14%	1,318	298	0%	23%	1,879	839	4%	75%	5,162	4,122	5%	380%
Other Built	185,632	174,802	25	0%	-6%	177,648	77	0%	-4%	173,160	20	0%	-7%	174,615	78	0%	-6%
Other Non-Built	655,747	581,117	-	0%	-11%	550,017	-	0%	-16%	566,861	-	0%	-14%	557,317	-	0%	-15%
Parks and Conservation	321,938	447,943	126,031		39%	446,320	124,382		39%	611,110	289,172		90%	532,758	210,820		65%
Residential: Rural	525,698	550,572	40,727	44%	5%	585,681	73,449	42%	11%	480,110	3,164	15%	-9%	492,370	2,432	3%	-6%
Residential: Suburban	217,625	258,593	35,601	39%	19%	299,942	71,809	41%	38%	239,146	9,314	45%	10%	284,533	53,687	67%	31%
Residential: Urban or Multifamily	129,269	103,156	3,637	4%	-20%	111,998	6,971	4%	-13%	112,315	3,442	17%	-13%	118,859	9,552	12%	-8%
Abandoned	27,171	63,190	-	0%	133%	39,730	-	0%	46%	27,425	-	0%	1%	20,733	-	0%	-24%
Total New Developed Acres			91,894				174,732				20,507				80,323		

Detailed GIS methodology:

1. To reconcile geometries, union future developed polygrid cells with current parcels
2. Create new field in parcels that included both existing land use and future Development Type (field calculation = “exlu_new dev type”)
3. Summarize area of all parcels by this field
4. For areas that were redeveloped, determine what percent of the area remains unchanged and what percent changed to a new land use:
    i. For existing parks and conservation land, 0% of the land area changes to a new land use (any existing park or conservation area was restricted from future development in all scenarios)
    ii. For other “undeveloped” areas that were developed (agriculture, unbuilt other, and abandoned) – 100% of area developed into new land use
    iii. For developed areas that were redeveloped, the percent of land developed into the new land use depends on the redevelopment rate of the Development Type[19]:
    iv. For areas/parcels that were abandoned:

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19 See Development Types in the Scenario Modeling section of the Technical Appendix for a complete list of redevelopment rates. For example, Downtown Commercial Core has a 71% redevelopment rate; a redevelopment rate of 71% means that 71% of the area “painted” with downtown commercial core changes from its current land use to “mixed use”; the remaining 29% retains its current land use.

        - With 35% Development Type: 35% of developed area abandoned; 65% of developed area remains current land use
        - With 55% Development Type: 55% of developed area abandoned; 45% of developed area remains current land use
        - Parcels painted with 20% vacancy did not change land use
    v. Parcels that were not "painted" with a new, future Development Type did not change land use
5. Calculate the net change in each land use
6. Add the net change to each existing land use to determine future land use

Urbanized Land

Data inputs: current parcel land use (NEOSCC with updates by the Sasaki Team) and future scenario land uses (Sasaki Team)

In this calculation, the percentage of urbanized land in the region is based on land use composition. "Urbanized" land includes all areas that are currently developed. Land uses included were: abandoned, other built, mixed use, industrial, commercial, urban or multi-family residential, and suburban residential. Rural residential was not included because of its low density. To calculate urbanized land, the areas of abandoned, other built, mixed-use, industrial, commercial, urban or multi-family residential, and suburban residential land uses were added. The following tables show an example calculation aggregating land uses into urbanized versus non-urbanized areas:

Land Use	Current Composition
Unknown	3%
Abandoned	**1%**
Other Built	**5%**
Mixed Use	**0%**
Industrial	**2%**
Commercial	**3%**
Residential: Urban or Multifamily	**3%**
Residential: Suburban	**6%**
Residential: Rural	14%
Parks & Conservation	8%
Other Unbuilt	17%
Agriculture	38%

Land Use	Current Composition
Unknown	3%
Urbanized	19%[20]
Residential: Rural	14%
Parks & Conservation	8%
Other Non Built	17%
Agriculture	38%

20 Urbanized area total shown may not exactly equal sum of separate land use due to rounding.

Urbanized Land 2040					
Land Use	**Current**	**Trend**	**Grow the Same**	**Do Things Differently**	**Grow Differently**
Unknown	3%	3%	3%	3%	3%
Urbanized	**19.3%**	**20.2%**	**21.5%**	**18.9%**	**20.4%**
Residential: Rural	13.7%	14.3%	15.3%	12.5%	12.8%
Parks and Conservation	8.4%	11.7%	11.6%	15.9%	13.9%
Other Unbuilt	17.1%	15.1%	14.3%	14.8%	14.5%
Agriculture	38.4%	35.4%	34.1%	34.7%	35.2%

Infill or Adjacent Development, Redevelopment, and Leapfrog Acres

Data inputs: current parcel land use (NEOSCC with updates by the Sasaki Team) and future scenario land uses (Sasaki Team)

This scenario model output classifies all new development into three categories:

- **Redevelopment**: Non-rural development that occurs on currently developed or abandoned land
- **Infill or Adjacent Development**: Non-rural development that occurs on currently undeveloped land that is within 500 feet of existing development
- **Leapfrog Development**: All other development (including all rural development)

Selections in GIS were used to select cells with non-rural new development that fell within 500 feet of existing development. The development within these cells was compared to current land uses to determine whether the development occurred on currently developed or abandoned land (this development was considered redevelopment) or on currently undeveloped land (this development was considered infill or adjacent). For cells that were redeveloped, redevelopment rates were taken into account to determine how much of current development was redeveloped.[21]

Total acres of redevelopment and infill/adjacent were calculated for each scenario. Any development that was beyond 500 feet of existing development and all rural residential development was categorized as leapfrog development.

Redevelopment, Infill, and Leapfrog Development

		Trend	Grow the Same	Do Things Differently	Grow Differently
Total Development (acres)		92,500	174,732	20,507	80,323
Redevelopment	Acres	4,287	5,064	4,339	13,688
	% of all development	4.6%	2.9%	21.2%	17.0%
Infill or Adjacent Development	Acres	24,083	47,865	8,874	34,425
	% of all development	26%	27%	43%	43%
Leapfrog Development	Acres	64,130	121,803	7,294	32,210
	% of all development	69%	70%	36%	40%

Acres of Outward Migration

Data inputs: current parcel land use (NEOSCC with updates by the Sasaki Team) and future scenario land uses (Sasaki Team)

This scenario model output measures the outward spread of development. It calculates new urbanized development that occurs beyond the existing urban "footprint." It is similar to "leapfrog" development in the previous calculation, but it does not include rural residential. This calculation measures new urbanized land developed at least 500 feet away from existing development and is calculated by subtracting rural development from all leapfrog development.

New Urbanized Land Beyond Existing Urban Areas

Trend	Grow the Same	Do Things Differently	Grow Differently
23,403 (acres)	48,354 (acres)	4,130 (acres)	29,778 (acres)

21 See Development Types in the Scenario Modeling section of the Technical Appendix for a list of redevelopment rates.

High-value Ecological Land Impacted

Data inputs: current parcel land use (NEOSCC with updates by the Sasaki Team), future scenario land uses (Sasaki Team), and ecological characteristics (various—see description below)

This scenario model output measures the quantity of land of high ecological value lost to development. Ecological value was inferred based upon a combination of many different layers including soil characteristics, proximity to waterbodies, geological features, vegetation characteristics, and contiguous conservation areas. High-value ecological land impacted is calculated by identifying areas of high ecological value that were developed in each scenario.

GIS calculation method:

1. Starting with union of parcels and polygrid cells, restrict layer to cells that are BOTH:
   - Currently unbuilt, developable (current land use = agriculture, vacant, or undeveloped other)
   - Developed in the scenario (Development Type is NOT: blank, vacancy 20%, abandonment 35%, abandonment 55%, or open space)
2. Export layer
3. Clip layer, using high ecological value land
4. Result = vacant land that was high ecological value that was developed
5. Dissolve into single shape
6. Record total land area

High Value Ecological Land Lost			
Trend	**Grow the Same**	**Do Things Differently**	**Grow Differently**
6,281 acres	11,994 acres	546 acres	3,344 acres

Acres of Significant Agricultural Land Lost

Data Inputs: current parcel land use (NEOSCC with updates by the Sasaki Team), future scenario land uses (Sasaki Team), and Soil Data (NRCS / USDA)

This scenario model output measures the acres of significant agricultural land developed in each scenario. Farmland classifications are based upon soil surveys from the Natural Resources Conservation Service (NRCS), which are developed in combination with input from local agencies. “Significant” agricultural land in this calculation includes areas of prime farmland, farmland of local importance, and farmland of unique importance. Acres of significant agriculture land lost is calculated by identifying areas of significant agricultural land that were developed in each scenario.

GIS calculation method:

1. Starting with union of parcels and polygrid cells, restrict layer to cells that are BOTH:
    - Currently unbuilt, developable (current land use = agriculture, vacant, or undeveloped other)
    - Developed in the scenario (Development Type is NOT: blank, vacancy 20%, abandonment 35%, abandonment 55%, or open space)
2. Export layer
3. Clip layer, using significant agriculture layer
4. Result = land that was significant agricultural land that was developed
5. Dissolve into single shape
6. Record total land area

Significant Agricultural Land Lost			
Trend	**Grow the Same**	**Do Things Differently**	**Grow Differently**
31,099 acres	60,037 acres	4,743 acres	18,813 acres

River Corridors and Water Bodies Impacted

Data inputs: current parcel land use (NEOSCC with updates by the Sasaki Team), future scenario land uses (Sasaki Team), and buffer layer developed by the Sasaki Team[22]

This scenario model output measures the number of acres of land adjacent to waterbodies developed. These adjacent areas are:

- Along rivers: 210’ buffer or 100 year floodplain, whichever is greater
- Along streams: 75’ buffer or 100 year floodplain, whichever is greater
- Around lakes, ponds, and wetlands: 120’ buffer

Rivers Corridors and Water Bodies impacted is calculated by identifying buffer areas adjacent to waterbodies that were developed in each scenario.

GIS calculation method:

1. Starting with union of parcels and polygrid cells, restrict layer to cells that are BOTH:
    a. Currently unbuilt, developable (current land use = agriculture, vacant, or undeveloped other)

22 Waterbody polygons used as basis of buffer layer included: wetland, pond, and lakes: CONUS (aerial extent of wetlands and surface waters) from U.S. Fish and Wildlife Service, Rivers: Ohio Department of Transportation GIS files, 2006; Streams: U.S. Census Bureau TIGER/Line files, 2010

    b. Developed in the scenario (Development Type is NOT blank, vacancy 20%, abandonment 35%, abandonment 55%, or open space)
2. Export layer
3. Clip layer, using water buffer layer (all buffers dissolved into single layer)
4. Result = vacant land that was within water body or buffer area that was developed
5. Dissolve into single shape
6. Record total land area

Floodplains, Waterbodies, and Buffers Developed			
Trend	**Grow the Same**	**Do Things Differently**	**Grow Differently**
14,796 acres	29,207 acres	0 acres	0 acres

In Do Things Differently and Grow Differently, development was restricted from these sensitive areas as a rule.

New Impervious Surface

Data inputs: future scenario land uses (Sasaki Team)

This scenario model output measures the acres of new impervious surface generated by each scenario. Sources of new impervious surface include new roadways, driveways, parking lots, and buildings.

The Development Types used to model the scenarios each have a specific per-acre impervious surface attribute. This attribute is applied to the total acreage by Development Type to calculate the total area of new impervious surface. Development Types that require more area for parking or more floor area to accommodate people and jobs will create more new impervious surfaces in a scenario.

Calculation method:

1. Tabulate the average impervious surface per acre for each Development Type
2. Tabulate the acreage painted by Development Type
3. Cross-multiply and sum

New Impervious Surface (acres)			
Trend	**Grow the Same**	**Do Things Differently**	**Grow Differently**
28,315	55,143	8,120	30,815

New Energy Use

Data inputs: future scenario land uses (Sasaki Team)

Building energy use measures the energy used for heating and cooling, hot water, lighting, appliances and computers, and other general uses. Building energy use can be costly in terms of both household budgets and environmental impact, so it is useful to compare the energy efficiency of buildings in each scenario. This scenario model output measures the amount of energy consumed per household or employee per year.

The Residential Energy Consumption Survey from the US Energy Information Administration provides regional averages for residential energy use per household. The regional average is weighted for each Development Type based on household square footage. The Commercial Buildings Energy Consumption Survey provides regional averages for commercial energy use per employee, broken down by employment type. A weighted average is calculated for retail, office, and industrial. These assumptions for both housing and employment are applied at the building level and aggregated to the scenario level for calculation.

Calculation method:

1. Tabulate the average building energy use by Building Type
2. Scale to Development Type
3. Tabulate average energy use by Development Type
4. Tabulate acreage painted by Development Type
5. Cross-multiply and sum

Energy Use from New Buildings				
	Trend	**Grow the Same**	**Do Things Differently**	**Grow Differently**
Energy use from new homes (BTU/year)	27,604,568,511	54,224,318,874	9,104,520,377	37,418,532,187
Energy use from other new buildings (BTU/year)	1,725,788,341	8,598,697,680	1,915,548,039	9,360,332,220
New energy use from buildings in 2040 (BTU /year)	**29.3 billion**	**62.8 billion**	**11 billion**	**46.8 billion**

Carbon Emissions

Data inputs: future scenario land uses (Sasaki Team)

This scenario model output calculates the carbon impact in each scenario due to building energy use. Each Development Type includes information about average energy use, and this information is aggregated to the scenario level to quantify total energy use in each scenario. Typical energy mix is also taken into account. The amount of carbon dioxide produced depends on the energy source. The Energy

Information Administration (EIA) provides values for tons of carbon dioxide emitted per million BTUs of energy use for each energy source (coal, propane, natural gas, etc.). Coal emits more carbon dioxide per unit of energy than natural gas, while wind and solar emit no carbon dioxide at all.

Calculation method:

1. Tabulate mix of energy sources for each development type
2. Quantify total CO2 emissions per development type (multiply mix of each energy source – coal, propane, natural gas, etc. – by the tons of CO2 per type)
3. Multiply by the total quantity of each development type

Carbon Emissions from New Buildings				
	Trend	**Grow the Same**	**Do Things Differently**	**Grow Differently**
Carbon emissions from new homes (tons/year)	2,574,951	5,058,038	849,269	3,490,397
Carbon emissions from new jobs (tons/year)	160,981	802,086	178,682	873,131
New carbon emissions from buildings in 2040 (tons/year)	2,736,000	5,860,000	1,028,000	4,364,000

Average Daily Household VMT

Data inputs: future scenario land uses (Sasaki Team); road intersections (derived from ESRI road network); transit stops (NEOSCC); 10, 20, and 30 minute network buffers (derived from ESRI road network); and Traffic Analysis Zones (TAZs) (NEOSCC)

Average daily household vehicle miles traveled (VMT) is determined by trip length and the number of trips taken by automobiles across the region. Calculated at the Traffic Analysis Zone (TAZ) level, this scenario model output employs Envision Tomorrow's Household 7D model to estimate trips by mode. The Household 7D model takes into account land use, road network, and transit service changes over time.

Calculation method:

1. Aggregate the land use attributes to the TAZ layer:
    a. Average household size, income, workers
    b. Existing and scenario activity density within 1 mile ([job+pop]/area)
2. Use the layers supplied to compute the following:
    a. Percent of regional employment accessible within a 10 minute auto trip (select employment at the block level using network travel buffers)
    b. Percent of 4 way intersections, total intersection density
    c. Transit stop density
3. Using the calculated variables above estimate total VMT for each TAZ as follows:

4. Linear Regression Model of Log Household VMT (for households with positive VMT)

	Coefficient	Standard Error	t-Ratio	p-Value
constant	2.51	0.185	13.6	<0.001
Ln(hhsize)	0.760	0.017	45.4	<0.001
hhworkers	0.158	0.011	14.9	<0.001
Ln(hhincome)	0.172	0.012	14.2	<0.001
Ln(actden1mi)	-0.102	0.014	-7.20	<0.001
intden1mi	-0.000767	0.000148	-5.17	<0.001
Ln(int4w1mi)	-0.0951	0.0161	-5.91	<0.001
stopden1mi	-0.000942	0.000442	-2.13	0.033
Ln(emp10mina)	-0.0525	0.0088	-5.95	<0.001
pseudo-R2 0.36				

5. Divide by the number of households in each TAZ.

VMT per household per day			
Trend	**Grow the Same**	**Do Things Differently**	**Grow Differently**
23.7	25.4	22.5	22.0

Average Weekly Non-auto Trips

Data inputs: future scenario land uses (Sasaki Team); road intersections (derived from ESRI road network); transit stops (NEOSCC); 10, 20, and 30 minute network buffers (derived from ESRI road network); and Traffic Analysis Zones (TAZs) (NEOSCC)

Average weekly non-auto trips are based on three separate sub-models within the Household 7D model: bike trips, walk trips, and transit trips. While each model is calculated separately, there is an overlap in model sensitivity to different variables.

Calculation method:

1. Aggregate the land use attributes to TAZ layer:
    a. Average household size, income, workers
    b. Existing and scenario activity density within 1 mile ([job+pop]/area)
    c. Existing and scenario land use mix (entropy)
2. Use the layers supplied to compute the following:

a. Percent of regional employment accessible within a 30 minute transit trip (select employment at the block level using network travel buffers)
b. Percent of 4 way intersections, total intersection density
c. Transit stop density

3. Using the calculated variables above estimate total VMT for each TAZ as follows:

Negative Binomial Model of Household Walk Trips

	Coefficient	Standard Error	t-Ratio	p-Value
constant	-3.64	0.38	-9.55	<0.001
hhsize	0.424	0.012	36.2	<0.001
lnhhincome	-0.0892	0.0233	-3.83	<0.001
entropy1/4mi	0.379	0.067	5.69	<0.001
lnactden1mi	0.279	0.027	10.5	<0.001
int4w1mi	0.0114	0.0013	9.01	<0.001
stopden1mi	0.00507	0.00075	6.72	<0.001
pseudo-R2 0.26				

Negative Binomial Model of Household Bike Trips

	Coefficient	Standard Error	t-Ratio	p-Value
constant	-5.91	0.37	-15.9	<0.001
hhsize	0.472	0.025	18.7	<0.001
entropy1/4mi	0.406	0.162	2.50	0.012
actden1mi	0.000006	0.000002	2.81	0.005
lnint4w1mi	0.726	0.084	8.64	<0.001
pseudo-R2 0.18				

Multilevel Model of Household Transit Trips

	Coefficient	Standard Error	t-Ratio	p-Value
constant	-0.837	0.759	-1.10	0.32
lnhhsize	0.575	0.063	9.06	<0.001
hhworkers	0.255	0.039	6.60	<0.001
lnhhincome	-0.462	0.037	-12.3	<0.001
entropy1/4mi	0.321	0.115	2.80	0.005
stopden1/4mi	0.00229	0.00043	5.34	<0.001
lnactden1/2mi	0.161	0.045	3.59	<0.001
lnint4w1mi	0.299	0.071	4.21	<0.001
lnemp30mint	0.129	0.025	5.11	<0.001
pseudo-R2 NA				

Average non-auto trips per week per household			
Trend	Grow the Same	Do Things Differently	Grow Differently
8.5	8.2	10.0	9.6

Percent of Jobs and Residents Near Transit

Data Inputs: current parcel land use (NEOSCC with updates by the Sasaki Team), future scenario land uses (Sasaki Team), current public transit infrastructure (NEOSCC), future public transit infrastructure (Sasaki Team)

This calculation measures the number of residents and jobs located near transit. “Near” transit access is defined as:

- ¼ Mile (5 minute walk) of frequent local bus service (runs every 15 min or less), or
- ½ Mile (10 minute walk) of BRT stops, commuter rail stops, or express bus stops

Buffers and spatial selections in GIS were used to calculate the number of residents and jobs located within these distances in each scenario.

Detailed GIS calculation method:

1) Construct buffers around transit features:
    - 1/4 mile buffer existing frequent (15 min or less) local bus routes
    - 1/2 mile buffer existing high-frequency transit (BRT and rail) stations
    - 1/2 mile buffer proposed BRT stations
    - 1/2 mile buffer proposed commuter rail stations
    - 1/2 mile buffer proposed express bus stops
2) Add field, populate with dummy attribute for each mode (0=NO, 1=YES)
3) Spatial join field to gridcell per presence of transit technology by scenario specification
4) Dissolve by gridcell

Access to Frequent Transit Service

	Current	Trend	Grow the Same	Do Things Differently	Grow Differently
Population with frequent transit access (percent of all people)	32.5%	25.5%	25.2%	35.1%	34.3%
Jobs with frequent transit access (percent of all jobs)	49.6%	40.8%	39.4%	50.0%	52.9%