Socio-Economic Report (Task 3.2)

THE GRAND VISION
Land Use & Transportation Strategy

This report includes the following deliverable products listed in Task 3.2:

- Population and demographic (seasonal and year-round) trends and forecast report
- Economic drivers trends and forecast report

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1.0 Executive Summary

The Grand Vision process allowed the residents of a six-county region to collaborate and create a single vision for the future. To reach the final vision, the community was offered a series of eleven scenario planning workshops. Scenario planning workshops allow residents to create stories about different possible futures based on anticipated growth. The question was not how much growth there will be but how it should happen. Each workshop exercise was designed to explore community opinions about the future. The workshops addressed different geographic areas of the region and worked at a variety of scales including county, regional and small area workshops. Two workshops specifically addressed transportation.

This report describes the scenario planning process with an explanation of the workshop timeline, attendance, activities, and results. An initial report was created to identify and summarize the work that had already been done in the region related to transportation and land use planning. It was titled "Past/Existing Transportation and Land Use Trends Report" and was completed in November 2007. A second report, "Grand Traverse Land Use Study: Values Research" was completed November 2008 by Harris Interactive to document the results of values research completed as part of the Grand Vision project. *The Grand Vision* document (*Vision* document) dated May 2009 is a separate document which captures the results of the community visioning process and lays a foundation for the implementation process. Another report entitled *The Grand Vision Travel Demand Model Methodology* contains a technical description of the traffic modeling activities associated with the Grand Vision process.

This report includes two of the deliverable products listed in Task 3.2 of the Grand Vision project scope:

- Population and demographic (seasonal and year-round) trends and forecast report
- Economic drivers trends and forecast report

Attention is given to the population and employment projections that were used for each workshop as well as to the development of the base maps and workshop chip sets. The scenario planning process uses population, housing and employment projections as a control that is held constant rather than as a variable factor in creating several possible futures. As a result, the assignment of socio-economic values to the Traffic Analysis Zones (TAZ) is done using the geographic capabilities of the modeling tool. The data export and modeling activity is discussed in this report in **Section 9.0** and also in an associated *Travel Demand Model Methodology* report.

The scenario planning activities began in October 2007 and concluded with the adoption of the final *Vision* document on April 21, 2009. The series of eleven public workshops began with a focus on Grand Traverse County and Elmwood Township in Leelanau County. After this regional focus, a series of three small area workshops allowed participants to consider future growth on a parcel basis. Two following workshops addressed transportation preferences and then county workshops were held for Antrim, Benzie, Kalkaska, Leelanau, and Wexford Counties. Based on the input received at all eleven workshops, four scenarios were developed to represent possible future development patterns. Information was provided to describe each one on the "Scorecard" document. Residents of the six-county region were then asked to provide feedback during the "vision decision" process. The results of the polling process were captured in the *Vision* document.

The Grand Vision contract scope called for the use of the current Michigan Regional Economic Models, Inc. (REMI) Policy Insight model for the project activities. The REMI projections are county level and state projections developed by the U-M using a version of the REMI Policy Insight model, together with a methodology for developing household forecasts designed by U-M in cooperation with the Michigan Department of Transportation (MDOT). Projections for the first workshop presented a special challenge because new REMI projections were due for release in December 2007. In order to keep the growth assumptions similar for each scenario planning workshop, it was important to identify projections for the first workshop that would be within 15 percent of the REMI numbers used at the following workshops. Several different projections for the study area were considered and a decision was made based on advice from Dr. George Fulton at the U-M of Michigan and Mr. Steve Landau of the Economic Development Research (EDR) Group. In addition to making a decision about the population and employment projections to be used for the October 2007 workshop, a decision was made to use projection numbers for 2035 rather than the 2055 that was called for in the project scope. This report details the projection analysis used prior to the first workshop and the decision to work with a thirty-year demographic projections in **Section 6.0**.

Each of the eleven scenario planning workshops provided participants with a base map and a set of chips to represent growth that would come to that area over the next 30 years. In each case, the chips were scaled to fit the base map. In some workshops, there were several starter chip sets from which to choose and in each workshop it was possible to trade chips of equal value. The number of chips in each set was based on the projected increase in housing units and jobs in the region with adjustments made to account for a variety of factors including seasonal homes.

In the small area workshops, the amount of jobs or housing represented by each chip was comparatively smaller than the same size chip created for a county workshop because of the base map scale. In the transportation workshop, the chips represented different types of transportation infrastructure based on an estimated budget for infrastructure improvements and additions in the region over the next 50 years. In the county workshops, the amount of projected growth was small at the county level so adjustments were made to increase the number of chips. Workshop activities were added to delve deeper into public design preferences for streetscapes and building style.

After each workshop, map results were digitized or entered into a data base in digital format to preserve both the written comments and the specific chip placement on the map. This approach to data management made it possible to present workshop results to the public in a graphic format. Even in workshops where 40 different maps were created, a digital rendering could show all chip placement from the workshop or areas where two or more tables had placed chips in the same location. This type of graphic report made it easy to identify areas where hundreds of people agreed and also where ideas differed.

After the scenario planning workshops were completed, a set of four possible future scenarios were created. The scenarios were based on ideas and themes from the collection of workshops. Scenario A was called the “Trend” scenario and it showed a collective growth pattern that continued past and existing land use patterns into the future. Scenario B was called “Rural by Design” and it located new growth in planned clusters of development in rural areas rather than in the urban nodes. This put people in closer contact with nature while protecting natural features and agricultural through careful design. Scenario C was called “Villages” and it put most new growth in villages around the region with some additional growth in Traverse City and Cadillac. Scenario D was called “City Centered” and it put most new growth in Traverse City and Cadillac.

A detailed description is provided of the land use modeling techniques used in the Grand Vision process to create the four scenarios in **Section 8.0**. They were created through the use of EnvisionTool, an ArcGIS plugin designed to allow professionals to create and analyze growth scenarios. The creation process is guided by existing conditions, community values and urban design techniques and is applied by individuals rather than by rules or mathematical formulas. The EnvisionTool program integrates with Microsoft Excel to provide analysis of the scenarios and exports data to other external models including those that are based on TAZ geography. A TAZ is a specific geographic area delineated for tabulating traffic-related data. In this case, the data could be exported to TransCad and run within the Traverse City Transportation and Land Use Study (TC-TALUS or TALUS) urban transportation model, which is detailed in **Section 9.0**.

The scenario options were shown on a map, and were described with transportation icons and narrative text. Additionally, indicators were provided based on citizen interest including cost of new infrastructure, amount of C02 emissions, and amount of agricultural and forested land consumed in each scenario. Citizens were asked to respond to the scenarios through a ten question survey called the “Scorecard.” In all, 13,940 responses were received. The strongest support was given to Scenario C, the “Villages” scenario and significant support was also given to Scenario D, the “City Centered” scenario. Some support was given to both the “Trend” and “Rural by Design” scenarios.

It is clear from the polling results that people value the benefits of placing new development in areas where some development already exists. However, there is still a need to provide for some additional rural housing and some retail options designed for automobile access. The results were not a vote with a single correct answer but an expression of the collective desire of the whole community.

Overall, new growth should be steered to existing cities and villages and prosperity should be spread throughout the region. More housing options should be provided to people near jobs and services and non-motorized transportation and transit options should be increased. Growth should be managed in a way that preserves both the small-town and rural character of the villages and the natural resources and agriculture nearby. A more complete account of the results of the Grand Vision public input process is provided in the *Vision* document of May 2009. To complement the *Vision* document, this report contains an account of how the public input process took place through a series of scenario planning workshops and reports the growth projections used for them.

From here, the Grand Vision deliverables and the community involvement will move into implementation plans and actions. The Grand Vision project will shift from the high-level, conceptual approach that has guided the development of the *Vision* to activities at the ground-level that will guide transportation and land use actions in the region. There will be two additional major reports related to transportation and three related to land use.

With regard to transportation, a series of corridor reports will present a preliminary engineering and environmental review of ten sections of road that have been selected as most significant to the regional transportation network. The corridors were selected based on a group of criteria including congestion, safety, and public opinion. Following the corridor reports, a Long Range Transportation Plan (LRTP) will be developed for the TALUS area.

Land use efforts will begin with a Policy Gap Analysis report. This report will identify areas where adjustment is needed to steer public policy toward the goals expressed in the regional *Vision* document. A socio-economic impact report will consider the costs and benefits to the region of the Grand Vision policy approach. Finally, a Preferred Land Use Vision report, which has also been called a "toolbox," will pick up on the issues identified in the gap analysis report and provide practical tools for closing the gaps.

The ground-level, technical reports are created to support the goals and ideas of the regional *Vision* document. The regional *Vision* document was created through an open and extensive public-input process. Citizens were given a variety of opportunities to provide input through eleven scenario planning workshops and then the Vision Decision polling process. This report describes the timeline, the activities, the workshop supplies, the growth projections, and the traffic modeling related to the public input activities of the Grand Vision.

2.0 The Consulting Team

Throughout this document, references are made to “the team” or “the consulting team.” Each of these references refers collectively to the group of professional consultants who worked together on the Grand Vision project. No project of this size, variety and complexity could be completed by a single person or within a single area of expertise. The Grand Vision is unique in its approach toward a coordinated, regional transportation and land use vision. The coordination was made possible by a team of experts from several different fields working cooperatively toward a common goal. This section describes the firms and individuals who are included in references to “the team” in this report.

Mead & Hunt, Inc. in Lansing, Michigan was the lead firm for the project. The project manager was Doug Christensen (P.E.). In addition, Lynn Wilson (AICP) and Bill Ballard (AICP) worked directly on the project, creating most of the project reports.

Fregonese Associates, Inc. in Portland, Oregon created the scenario planning workshops, digitized the resulting maps, created the four possible future scenarios using EnvisionTool and the final Vision map. John Fregonese, Glen Bolen (AICP) and C.J. Gabbe (AICP) worked directly on the project.

Kimley Horn, Associates in Dallas, Texas worked on traffic modeling tasks for the project. Kurt Schulte (AICP) and Garrett Burchett (AICP) worked directly on the project.

Robert Grow and Associates in Salt Lake City, Utah provided leadership on the regional visioning process and guided the development of the project champions. Robert Grow (P.E. and J.D.) worked directly on the project.

Harris Interactive in Rochester, New York was responsible for the values research and report conducted as part of the project. Dee Alsop worked directly on the project.

These firms and the individuals listed here are collectively referred to as “the team” throughout this project document. These firms provided valuable information and services and were involved in the collaborative effort that shaped the consulting team’s approach to the Grand Vision.

3.0 Scenario Planning

Scenarios are really stories about what might be. The scenarios themselves are not forecasts or predictions of population and employment numbers. They are possible futures that are based on what already exists, on trends that are evident, and on the values and preferences of the region. The essential requirement of any scenario is that it be plausible. Usually three or four scenarios are built as a way to compare outcomes and learn about the forces that are shaping the future. If a particular outcome is preferred, it can be selected as a plan.

Scenarios provide a visual snapshot of what the future might hold for a community and it can be a tool for the community in deciding how to manage growth wisely. Scenarios are sometimes mistaken as forecasts or predictions. In fact, they are different configurations of the same forecast that can be molded to fit the values and desires of a particular community.

Scenario planning is widely used in business and military settings and is also an effective tool for considering regional growth choices. Given the complexity of the issues we face in today's environment, the number of variables that had to be considered, and the long-range time frame of the regional Vision, the exercise of establishing future population and employment projections is not the key function of the scenario planning process. It is important to use reasonable numbers and to hold them constant through the separate scenario planning exercises. In this way, as different scenario themes emerge, they are different expressions of the same future conditions. Once the scenario themes are identified, they can be measured against the community's goals.

Scenarios are built based on what already exists, on trends that reflect current situations and growth patterns, as well as on people's values and preferences. Scenarios are used to test strategies for transportation and land use to see how they work under different conditions. *What if there is more mixed use development? What if there is more pedestrian infrastructure?* The most reliable strategies are those that work in any scenario. If a strategy works in only one scenario, it is fragile and should be used cautiously, with full knowledge of the possible down sides. A very successful series of public workshops provided direct input to the development of the four possible future scenarios and the final regional Vision.

4.0 The Public Input Process

A series of public scenario planning workshops were held to gather public input on future growth patterns. This section is written to provide an overview of the public input timeline including a brief description by subject, date, and participation numbers for each workshop. A more technical and detailed discussion of the specific workshop tools (maps, chip sets, etc.), the creation of the four possible future scenarios, and the data export for traffic modeling are included in **Sections 7.0**, **8.0**, and **9.0** respectively.

In each scenario planning workshop, participants worked to place "chips" on a base map. Sets of chips were provided in an envelope at each table. This collection is called a "chip set" throughout this report. The workshop chips are actually stickers representing a variety of development types. Each development type was represented by a chip with a unique color, a graphic picture and text. Examples of the chip types include *downtown, village, compact neighborhood, large lot subdivision, arterial commercial, and activity center*. A chip guide was provided with a written description of the land use type and several photos for each chip type. The guide also explained how many housing units and how many jobs were represented by each chip. The chips were scaled to fit the map meaning that the land area consumed by each use was proportional to the area that it covered on the map. A copy of a chip guide sheet is included in **Appendix B** of this document.

Although the scenario planning workshops were an important part of the process, they were conceptual in nature. The results of the workshops were not used as direct input into the traffic modeling process; rather, they were used as a guide for the team to develop the four possible future scenarios. Those scenarios were then modeled using the MDOT urban Travel Demand Model (TDM) for the TALUS area. That step is described in **Section 9.0** of this report.

4.1 Scenario Planning Workshops

The first scenario planning workshop was held at the Park Place Hotel in Traverse City, Michigan on October 17, 2007. Attendance at this event exceeded expectations as 450 people filled the public gathering room. The base map for the workshop was Grand Traverse County and Elmwood Township. A copy of the map used at the workshop is included in **Appendix B** of this document.

At the first workshop, participants were given three chip sets to represent a compact, a suburban, and a "hybrid" development style. Each set included the same amount of population, housing, and employment growth. The group decided on a chip set to begin the exercise and then were permitted to trade individual chips as long as the resulting number of housing units and jobs remained the same. Groups of 8-12 people worked to place the projected growth (chips) on the base map.

After planning at the regional level, a series of small area workshops were held to explore future growth preferences in more detail. In these exercises, participants looked more closely at opportunities for future growth on a parcel-by-parcel basis and considered questions of infill versus green field development. Participants did not need to be a resident of the workshop area to attend the workshops. A Central City workshop for downtown Traverse City was held on January 23, 2008, and was attended by 240 people. Small area workshops for Interlochen and Acme were held on January 24, 2008, and were attended by 120 and 144 people respectively. All three of these workshops also had a streetscape cross-section exercise. A copy of the map used at each workshop is included in **Appendix B** along with the graphic used in the cross-section exercise.

Two transportation workshops were held on March 20, 2008, at the Civic Center in Traverse City. The daytime session attracted 168 participants and the evening session hosted 224. Three separate base maps depicting two counties each were created and participants were free to choose any of the three. Chips were created for the workshops to represent transportation infrastructure rather than land uses, and the constraint for the activity was based on an estimated transportation budget for the region. More information is provided in **Section 7.2** of this report entitled "Transportation Workshop." A copy of the maps used at the workshop is included in **Appendix B**.

In May 2008 a series of county workshops were held in each of the five counties that had officially become part of the project area through a contract revision. The workshops were held as follows:

Table 1 May 2008 County Workshops

County	Meeting Date (2008)	Attendance
Antrim	May 27	150
Benzie	May 28	180
Kalkaska	May 7	195
Leelanau	May 8	205
Wexford	May 27	75

Source: Mead & Hunt

The map limits were the county lines and the population and employment forecasts were based on the individual county projections from the Institute of Labor and Industrial Relations, U-M forecasts prepared for MDOT, December 2007. These projections are also referred to as REMI projections throughout the report. Additional discussion of the increment control numbers and chip representation is included in **Section 7.0**. Because the projected growth in these counties was small when applied graphically at the county scale, a slightly different approach to the chip sets was used. Only residential and open space options were represented with chips. Input on commercial, employment, transportation, and civic growth or investment was obtained through an open comment method. During this workshop, attendees also participated in a visual preference survey. This was, again, to query block level design preferences.

4.2 Future Scenarios

After gathering all of the public input from the scenario planning workshops, four possible future scenarios were developed. The scenarios represented different patterns or themes that emerged from the scenario planning workshop maps as identified by the project team. Data from each of the four scenarios was exported and used as input data for the regional traffic model. This is discussed in detail in **Section 9.0** of this report. The exported data by TAZ is included in as **Appendix C**. As a result, transportation indicators associated with each scenario could be considered as part of the public decision making process.

The four possible future scenarios were unveiled at the State Theatre on October 7, 2008 and then in each county in the study area over the following week.

The four scenarios were titled by the letters A through D. They can be described simply as:

- *Scenario A – "Trend"*
- *Scenario B – "Rural by Design"*
- *Scenario C – "Villages"*
- *Scenario D – "City Centered."*

Additional information about population, housing and employment controls and distribution is provided in **Section 7.4** and the creation of the scenarios is detailed in **Section 8.0**.

After the scenario choices were presented, residents of the six-county region were asked to respond to the scenarios through a polling process. The survey instrument was called the "Scorecard," which was a multi-page brochure. It included information about public participation in the scenario planning workshops, descriptions of the four scenarios, and a polling response ballot. The "Scorecard" was available on paper and on-line at the project website (www.thegrandvision.org). A total of 13,940 responses were received through the response period. The responses indicated a preference for the "Villages" scenario (C) with support also shown for the "City Centered" scenario (D). The responses are detailed more specifically in **Section 7.4**. As a result of the public input received during the polling process (dubbed the *Vision Decision*), a final, preferred regional Vision was created graphically and presented to the public. The draft *Vision* document included a regional map and supporting text. The public provided comments on the draft *Vision* document during an extended comment period that began with an open house event on February 4, 2009. The final *Vision* document was accepted by the TALUS Board on April 21, 2009. The final *Vision* map is included in **Appendix A** of this document.

4.3 Data Selection Process for October 2007 Workshop

The Grand Vision project scope states that:

> *The consultant will use the statewide economic model as the basis to develop sub-county zone (traffic analysis zone) projections, taking into account population and employment trends within the study area. The core forecasts are at the state and county levels, and will be generated by the current Michigan Regional Economic Models, Inc. (REMI) Policy Insight Model.*

However, at the time of the first workshop, a set of forecasts were under development for each of Michigan's eighty-three counties and for the state as a whole (the latter equivalent to the sum of all of the counties) for 2005-2035. These forecasts are provided for each year through 2010 and in five-year intervals from 2010 through 2035 for population, employment, personal income, and households. The forecasts were developed using a version of the Policy Insight Model, together with a methodology for developing household forecasts in cooperation with MDOT. At the time of the first workshop, the forecast for 2000 through 2025 and 2030 were available and the new forecasts were anticipated in December 2007. As a result, the selection of population and employment data for the October 2007 scenario planning workshop posed a challenge. It required the consideration of several different projections from reliable sources by industry professionals.

The project team included John Fregonese, Glen Bolen, C.J. Gabbe, Robert Grow, and Kurt Schulte who all had national experience working with demographic and economic projections. The project team, along with TC-TALUS staff, considered options for establishing population and employment projections. Steve Landau of the Economic Development Research Group in Boston, Massachusetts is a regular collaborator with this project team. He proposed that growth projections from multiple sources be assembled and put in front of U-M faculty for guidance as to which one(s) were closest to the developing official state forecast.

The project team began a discussion and review of the population and employment data available for the study area in preparation for the October 2007 workshop. At this point, the study area had not been expanded to its six-county region so the geographic limits were the TALUS boundary that included Traverse City, nine townships in Grand Traverse County, and Elmwood Township in Leelanau County. The team wanted to identify 2035 population and employment projections for the October 2007 workshop that would align closely with the anticipated numbers from the December 2007 U-M REMI projections. This way the projection numbers and the growth assumptions would be similar for each scenario planning workshop.

5.0 TALUS Population Projections

5.1 TALUS Long Range Plan Projections

The consulting team was aware of the population projections created as part of the July 1995 Long Range Plan by TC-TALUS for the TALUS area. The document was reviewed and summarized in the creation of the *Past and Existing Land Use Trends and Transportation Report*. The Long Range Plan included a single population projection on page three that reads:

> The population of the study area in the year 2015 is expected to be about 124,000, almost double the current population. Employment is expected to increase from 34,200 in 1990 to 58,600 in 2015. These projections are based on past trends, census data and input from local planners.

A methodology report entitled *1990/2010 Socio-Economic Data Determination and Methodology (1993)* was produced separately and included a high, medium, and low population projection for 2010 along with an explanation of the project methodology. The report notes that the three alternative scenarios were produced to reflect current and predicted land use, affinity for certain types of development, and existing trends. The statistical process started with census data from 1930 to 1990. Next, four basic statistical methods were applied and the results were reviewed by local planners for their respective municipality. Finally, confidence interval statistical techniques were applied. The methodology report states that the procedure "yielded low and high values and the medium value corresponded with the actual forecast." The following table is taken directly from the methodology report:

Table 2 TC-TALUS Total Population by Jurisdiction

	1990 POP.	2010 LOW	POP. GROWTH	% GROWTH	2010 MED.	POP. GROWTH	% GROWTH	2010 HIGH	POP. GROWTH	% GROWTH
ACME	3447	4679	1232	36	5653	2206	64	7342	3895	113
BLAIR	5249	9932	4683	89	11285	6036	115	12641	7392	141
E.BAY	8307	11891	3584	43	14715	6408	77	17420	9113	110
ELMWOOD	3427	4793	1366	40	5057	1630	48	5792	2365	69
GARFIELD	10516	18499	7983	76	19295	8779	83	21243	10727	102
G.LAKE	3677	6357	2680	73	7074	3397	92	7795	4118	112
L.LAKE	5977	10926	4949	83	11688	5711	96	16148	10171	170
PENINSULA*	2962	3634	672	23	3634	672	23	6305	3343	113
T.CITY	15155	15341	186	1	17216	2061	14	17596	2441	16
WHITEWATR	1825	2000	175	10	2432	607	33	4910	3085	169
TOTAL	60542	88144	27602	46	98049	37507	62	117192	56650	94

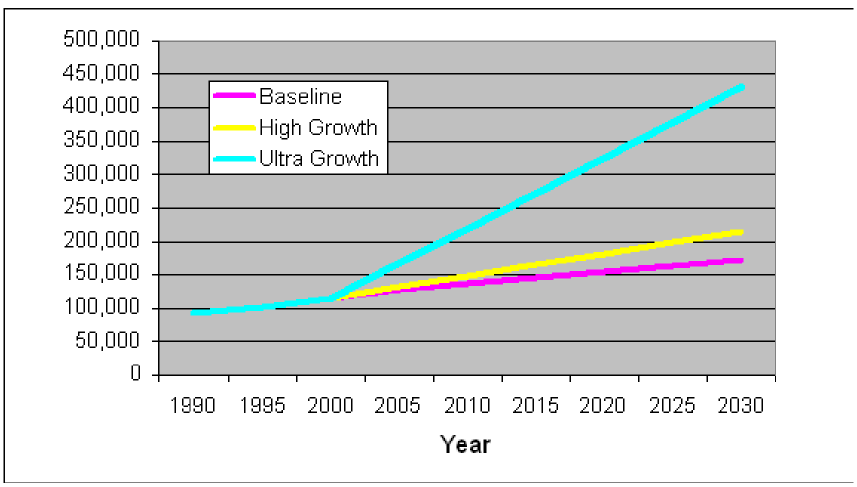
* = Southern half of the Township

Source: 1990/2010 Socio-Economic Data Determination and Methodology (1993)

5.2 TALUS-LEAM Project

The consulting team also reviewed the contents of the TALUS-LEAM study, including its population projections, as part of the *Past and Existing Land Use Trends and Transportation Report*. LEAM is an acronym for Land-Use Evolution and Impact Assessment Model. The team was aware of the LEAM study projections during the preparation for the October 2007 workshop. It is a collaborative, computer-based decision support process that uses a series of model drivers including population, economic, social, transportation, and neighborhoods as inputs for the simulation process. The inputs, including population, are altered to test different outcomes and show different possible futures.

According to the TALUS-LEAM project report, population projections used in the project were obtained from the U.S. Census Bureau and the Michigan Office of the State Demographer. Population projections for the TALUS-LEAM study area had been done pre-2000 census by the State of Michigan to 2020 and the U.S. Census Bureau to 2025. The State of Michigan population projection estimate in the TALUS-LEAM study area was 188,400 in 2020 and was selected as a good starting place for the study (see the "High Growth" projection below). The study area included Benzie, Grand Traverse, Leelanau, Antrim, and Kalkaska Counties. A baseline projection was lower and an ultra-growth estimate multiplied the baseline by 250 percent.



Source: TALUS-LEAM Study Report

Figure 1 Growth Projection Chart from TALUS-LEAM Study Report

Regarding the Ultra-Growth estimate, the TALUS-LEAM report notes that "while such extreme growth is unrealistic, the results are useful for better visualizing the spatial distribution of potential growth. In the baseline model smaller effects are sometimes difficult to identify; Ultra growth scenarios aid in locating these areas of change."

6.0 Demographic projections from state and national sources

In addition to the TALUS projections, the team considered population and employment projections from four state and national sources including Woods and Poole Economics, Inc.; Moody's economy.com; Economic Modeling Specialists Inc. (EMSI) and the 2003 REMI projections. Each of these sources creates projections to fill a different niche in the public and private markets, and each is a respected data source.

Woods & Poole Economics, Inc. is an independent firm that has made long-term county economic and demographic projections since 1983. Woods & Poole's database for every county in the U.S. contains projections through 2040 for more than 900 variables. The projections are updated annually with new historical data and sold commercially as a reference source.

Moody's Economy.com is a division of Moody's Analytics and is a respected independent provider of economic analysis, data, and forecasting and credit risk services.

EMSI creates demographic data and projections based on three major sources: (1) U.S. Census Bureau annual estimates, and County Population Estimates (CPE), (2) birth and mortality rates from the U.S. Health Department, and (3) projected regional job growth. In addition, they produce user-friendly web-based tools and reports that interpret and analyze labor market and demographic data for any geographic area in the United States or Great Britain. EMSI specialized in regional input/output modeling and began producing its own regional economic data throughout the 1990s as a basis for input/output models.

Perhaps most familiar is the projection produced by the Research Seminar in Quantitative Economics (RSQE) led by Dr. George A. Fulton at the U-M. RSQE is an economic modeling and forecasting unit that has been in operation at the U-M since 1952. Since 1973, the U-M RSQE has been under contract with the State of Michigan to provide and maintain an econometric model of the state economy. Over the past 15 years, Dr. Fulton at the U-M has produced long-term economic and demographic forecasts for MDOT, the Metropolitan Planning Organizations (MPOs), and the State Regional Planning Organizations.

Dr. Fulton is a nationally-recognized expert in using the input/output model of the Michigan economy developed by REMI. Conceptually, REMI is similar to a standard input/output model because it incorporates buying and selling transactions among industries at a detailed level. The REMI model goes beyond standard input/output models, however, because it also traces the implications of economic actions over time. Under Dr. Fulton's direction, RSQE has twice received the prestigious Blue Chip Annual Economic Forecasting Award recognizing "accuracy, timeliness, and professionalism" in economic forecasting.

All of the demographic projections listed above were reviewed by the team and are included in **Appendix A** for reference.

The team gathered and reviewed each population and employment projection. During this process, Mr. John Fregonese of Fregonese Associates, Inc. (FAI) commented that it was not critical that the workshops be exactly the same as the official forecasts anticipated in December 2007. However, the numbers needed to be reasonably close so the workshop results would align with the future scenario choices later in the project. His goal for the October 2007 workshop was to be within 15 percent of the December 2007 REMI numbers. When the various projections were presented to Dr. Fulton at the U-M, he offered the following comments:

> *Because of the unrealistically high projections, the Woods and Poole forecast should be completely discarded. The forecasts are too high in their population forecast and way too high in their employment forecast. Indeed, the employment forecast is so high as to call into question if the Woods and Poole model has incorporated the impact of the aging of the population on the size of the labor force.*
>
> *The Moody's economy.com population forecast in 2030, at 114,180 is more reasonable although probably still slightly too high (3-5%). The Moody's economy.com employment forecast is on a wage and salary employment basis. Woods and Poole, EMSI and the RSQE forecasts use a total employment measure produced by the Bureau of Economic Analysis (BEA). The total employment measures includes self-employed workers, measured in the broadest possible fashion, while the Moody's economy.com employment measure, generated by the Bureau of Labor Statistics, does not include any self-employed workers. (The BEA measure also includes farm workers and the military and some other relatively minor differences). Thus one cannot compare the level of employment in the Moody's forecast with any of the other forecasts. The Moody's rate of change in job growth, however, again appears to be a little too high. Moody's is projecting job growth between Dec. 2005 and Dec. 2030 of 25.7%, whereas the already too optimistic RSQE forecast of 2002 had job gains of 23.8% over that period (annual averages). Farm and military employment will definitely be declining over the next 25 years so some of the extra growth in the Moody's forecast will be explained by the fact that it doesn't include these industries, nevertheless the Moody's employment growth rate will likely be too high by 3-5 percentage points.*
>
> *The EMSI population forecast for Grand Traverse County through 2017 looks reasonable, maybe 1% too high, but the EMSI statewide forecast of population and especially employment appear quite high. The EMSI employment forecast for Grand Traverse in 2017 is likely too high by about 3-5%. It appears the EMSI forecast did not capture the economic impact of the housing and real estate downturn in Michigan, thus the construction and real estate forecasts for Grand Traverse are too high. There are some other problems with the industrial composition of the employment forecast. For example, employment growth in health and social assistance is too low and retail trade is too high. Nevertheless, it appears that this forecast is in closest agreement to the RSQE forecast.*

As a result of Dr. Fulton's comments, Mr. Steve Landau proposed the following approach for the October 2007 workshop controls to the staff at FAI:

My recommendation is to use the 2003 employment forecasts for the October workshop; this has the advantage of being the "current" official forecasts from Michigan DOT. Based on past discussions with you, saying that you wanted forecasts for October within 10% or so of the eventual 2007 update, this should meet that goal. However, the 5-10% is on total employment. Each individual sector may be more (or less) volatile. My suggestion is to consolidate sectors as much as possible to reduce the volatility.

For population, Landau recommended using the following numbers for Grand Traverse County (in thousands):

Table 3 Population Control for October 2007 Regional Workshop

Dec-2005	Dec-2010	Dec-2015	Dec-2020	Dec-2025	Dec-2030	Dec-2035	Dec-2037
83.95	86.52	92.45	98.14	103.99	109.79	115.58	117.90

Source: EDR Group

The team accepted Mr. Landau's recommendations and used them for the October 2007 workshop. For the purposes of the workshop activity, the difference between 2005 and 2035 was used as the projected increase in population (31,458) and was the control for developing the chip sets used by participants at the October 2007 scenario planning workshop.

The employment data was also developed following his direction relative to grouping the individual sectors into three categories. Staff at FAI aggregated the numbers projected for 2005 and 2030 in the REMI 2003 report into three categories: industrial, retail and office. In this assignment, 10 percent of service industries were assigned to retail and 90 percent of service industries were assigned to office. A projected employment number for 2035 was created by taking the difference between the 2005 employment numbers and the projected 2030 employment numbers and extending the trend out an additional five years.

Table 4 Base and Projection Employment Controls for October 2007 Workshop

	2005	2030	2035
Retail	26,026	30,932	32,598
Office	31,795	45,762	48,828
Industrial	7,883	10,685	11,151

Source: FAI

The consulting team worked to create population and employment projections for the October 2007 scenario planning workshop that would be similar to the December 2007 numbers expected from REMI to provide some consistency between workshop results. The purpose of this section is to describe the process of establishing population and employment projection numbers to be used at the October 2007 Scenario Planning workshop. The balance of the scenario planning workshops used the 2007 REMI projections prepared for MDOT, dated December 2007 as they applied to each workshop area.

The scope calls for the projections to be seasonally adjusted. A discussion of how this was achieved in the scenario planning process is included in **Section 7.0** as it is a part of the creation of the workshop chip sets. A description of how seasonal adjustments were made to the TDM is included separately in the report entitled *The Grand Vision Travel Demand Model Methodology*.

The scope also calls for projections to be made to 2050 during the course of the Grand Vision project. Specifically it reads:

> The consultant will provide baseline projections for population and employment changes in the study area to the year 2050, with interim reporting points at 2015 and 2030. The forecast will include seasonal trends. Because the statewide economic model extends only to 2050, the projections will include a high and low range to the year 2055.

The scope language requiring fifty year demographic projections was written to support the goal of the Grand Vision: a plan for the next fifty years. The scope specifically calls for the REMI projections to be used: "*...the core forecasts are at the state and county levels, and will be generated by the current Michigan Regional Economic Models, Inc. (REMI) Policy Insight Model*." While REMI demographic projections are available to the year 2050, they are not offered with the same confidence level as those to 2035. Staff from the MDOT has provided an explanation of the difference in the two forecasts.

The 2035 and the 2050 forecasts are derived from different versions of the REMI Policy Insight Model as adapted by U-M. The 2035 forecasts are generated at the U-M and include estimates of population, households, and employment in 23 sectors. The forecasts are very detailed. The population forecasts are subdivided into eleven age cohorts for both males and females. The major components of population change are also isolated (natural change, net domestic migration, and net international migration). The employment forecasts are based on the Bureau of Economic Analysis series and are broken out into thirty-one industry divisions consistent with the North American Industrial Classification System for defining industry categories. Personal income is partitioned into five major subcategories, total shipments (sales) into nineteen industries, and a single series per county is provided for Gross Regional Product. The household forecasts cover the population in households (and group quarters), and the number of households. The latter also includes projections of the distribution of households by size of household, age of household head, category of income, number of vehicles, and with/without children status.

The 2050 forecasts are generated by MDOT's in-house version of the REMI model in conjunction with MDOT's Benefits Estimation System for Transportation (BEST) Tool. The BEST Tool consists of pre-processed data on transportation planning projects that is used as input to the MDOT REMI model, which is based on employment in 70 sectors. The 70-sector REMI model was calibrated by the U-M to match the calibration settings used by the REMI model that produced the 2035 forecasts. These two models are producing different things and are used differently at MDOT.

There are several reasons to prefer the 2035 REMI forecasts for use in the Grand Vision projections. First, the 2035 projections serve as the control totals for MDOT's TAZ databases that are used in the statewide TDM. Second, the 2035 projections have regional/MPO feedback integrated within them in their final release. Third, they are the forecasts circulated among MDOT's planning partners statewide. Fourth, they guide the assumptions MDOT makes about growth as part of its LRP analyses. The use of the 2035 REMI projections will create results from the Grand Vision that are similar to the LRP process use by MDOT for the region and therefore more useful in that process.

There is also a question of accuracy of a fifty-year socio-economic projection. The MDOT REMI model with the fifty-year projection functions as a sensitivity analytical tool to test the socio-economic effects of a proposed project more generally. It is not released for public use through the state's MPOs and it is not used by MDOT for trip generation within a model. Other national forecasts considered by the consulting team were also performed as a thirty-year forecast indicating that this is an industry standard for socio-economic projections.

While the values and regional growth preferences in the *Vision* document are intended to guide the region over the next fifty years, the use of the fifty-year REMI projections had several limitations when compared to the 2035 REMI projections. First, the preparation process makes the 2035 REMI projections more accurate. Second, the use of the 2035 projections created output from the scenario maps that transitions more seamlessly into MDOT's LRP activities. Third, the value of the scenario planning activities and the traffic modeling results were not reduced because of the projection range. For all of these reasons, the consulting team and the TALUS staff agreed to use 2035 socio-economic projections for the Grand Vision.

7.0 Scenario Planning—the Workshop Control Data and Chip Sets

The Grand Vision process included a total of eleven scenario planning workshops between October 2007 and May 2008. The first workshop was called the Regional Scenario Planning Workshop and was held on October 17, 2007. The base map for the workshop showed all of Grand Traverse County and Elmwood Township and is included in **Appendix B**.

The chip sets created for the October 2007 workshop were created based on a single set of control numbers. Those numbers are summarized in the following chart. The population data came from the recommendation of Mr. Steve Landau of the EDR Group that was detailed in **Section 6.0**. The employment numbers came from the 2003 REMI model. Adjustments were made to housing and employment characteristics within the control numbers to reflect rates of infill development, seasonal population, and other factors that influence the amount of land consumed (acres) for each use, but the controls were constant between the chip packets.

Table 5 Control Totals for October 2007 Scenario Planning Workshop

	Population	Housing Units	Employment	Industrial	Retail	Office
2005	83,950	38,483	65,704	7,883	26,026	31,795
2035	115,580	52,982	92,613	11,151	32,598	48,828
Increment	31,630	14,499	26,909	3,268	6,572	17,033

Source: FAI

The workshop chips represented development types and were scaled to fit the map. In addition to representing a physical development area, the chips represented employment in terms of the number of jobs and population in terms of the number of housing units. Many commercial development types also represented some number of housing units because the development type includes both commercial and residential uses. Downtowns, for example, include some housing over first floor retail establishments and some apartment buildings.

Housing units and households are related terms but they are not interchangeable. A housing unit is a house, an apartment, a mobile home, a group of rooms, or a single room that is occupied or vacant but intended for occupancy. A household is defined as all of the persons who occupy a housing unit. The occupants may be a single family, one person living alone, two or more families living together, or any other group of related or unrelated persons who share living arrangements. Therefore all households occupy a housing unit, but housing units may also be vacant or seasonal housing. The Grand Traverse regional forecasts by county were all for households; however, the scenario-building process looks instead at allocating housing units to take into account both occupied and vacant units and to assess the effect of density. To convert the measurement, the housing units per capita were held constant and applied to the 2035 population projections to create future housing unit control totals for the scenarios. The ratio was 2.18 people per housing unit. This was different than the ratio of 2.79 people per household. The ratio of people per housing unit is lower because seasonal housing units are included in the calculations.

Each chip was adjusted to account for conditions that limit the amount of development that will likely occur in the area including regulatory and market factors as well as existing development ratios. One of the adjustments was performed to reflect the seasonal housing in the area. First, the seasonal housing data was researched. Staff at FAI found that in the Traverse City micropolitan area, 18.9% of units are seasonal based on 2007 American Community Survey (ACS) data. According to that same source, 7.4% of housing units are seasonal in Grand Traverse County. Staff at FAI assumed that the same proportion of housing units in the future would be seasonal as they were in 2007. This was accomplished by holding the population-to-housing unit ratio constant from 2005-2035.

To address seasonal housing units, incremental housing units were used as one of the control totals and an "underbuild factor" was applied. An "underbuild factor" is used to compensate for a range of things including vacancy rates, seasonal housing, the likelihood that developers will build to capacity, and non-regulatory constraints. A different factor for each development type was applied and the "residential only" types have the higher factors applied. Simply put, this type of calculation means that there are more housing unit chips in the chip packet than would be required based on the population numbers alone. The underbuild factor and a factor representing the percentage of land already developed were both applied to the acreage to determine the buildable acres per chip. This same concept was applied to the development of the four possible future scenarios described in **Sections 8.1** and **8.2**.

Table 6 Workshop Chip Types for October 2007 Scenario Planning Workshop

Development type	Acres	Buildable Acres/chip	Jobs	Housing Units
Downtown	40	12	260	165
Village	40	12	170	59
Main Street	160	40	473	285
Activity Center	160	96	789	181
Arterial Commercial	160	104	839	189
Employment District	160	88	1656	96
Industrial	160	120	723	0
Compact Neighborhood	160	56	0	432
Residential Sub	160	88	0	288
Large Lot	160	96	0	115
Rural Housing	640	124	0	12

Source: FAI

Participants were given three chip sets from which to choose ranging from compact development style to rural development style. Each set included the same amount of population, housing, and employment growth which was approximately equal to the control totals. Additional trading of chips was allowed using the chip trading guide as long as the resulting number of housing units and jobs remained the same. The distribution of chips in packets was:

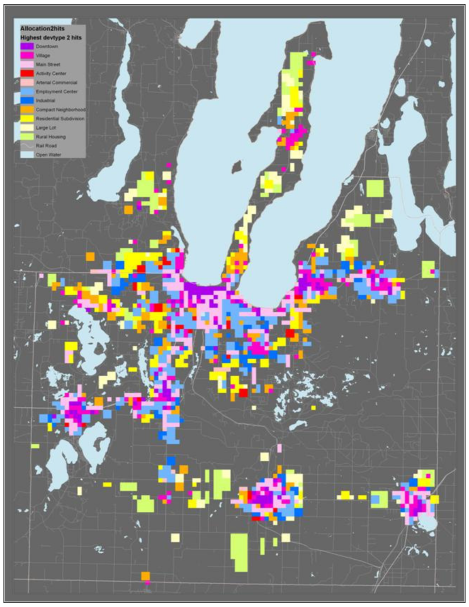
Table 7 Chip Set Contents for October 2007 Scenario Planning Workshop

	Trend/Medium		Hybrid		Compact	
Development type	**Number of chips**	**Number of buildable acres**	**Number of chips**	**Number of buildable acres**	**Number of chips**	**Number of buildable acres**
Downtown	2	24	4	48	7	84
Village	3	36	8	96	13	156
Main Street	3	120	5	200	9	360
Activity Center	4	384	3	288	1	96
Arterial Commercial	4	416	3	312	0	0
Employment District	6	528	7	616	9	792
Industrial	11	1,320	8	960	4	480
Compact Neighborhood	4	224	8	448	12	672
Residential Sub	18	1,584	16	1,408	12	1,056
Large Lot	33	3,168	16	1,536	4	384
Rural Housing	35	4,480	18	2,304		0
Totals	**123**	12,284	**96**	8,216	**71**	4,080

Source: FAI

Workshop participants worked in groups of 8-12 to create 40 different maps. The base map showed existing land uses and environmentally sensitive areas such as steep slopes, open water, and wetland areas. It was color-coded to indicate existing residential, commercial, and industrial land uses. Once the group selected a chip set, they identified “where not to grow” with a green pen and then placed the chips on the map to express their future growth preferences.

The workshop maps were then digitized by FAI with the chip locations noted electronically in the computer database. The digitized results allowed the consultant to identify common themes and differences in public preferences. Some of the results shared at future workshops are shown here on the following pages.

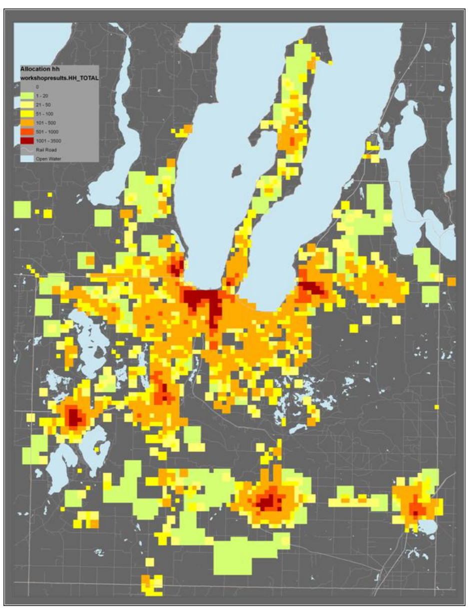


Chips with at least two hits—all land uses

This map shows locations where at least two chips were placed in the same location on the map by at least two tables at the workshop. The chip representing the most intense land use is shown on the map in each case. The most intense use is defined hierarchically as shown from top to bottom on the map legend with employment more intense than housing and the number of jobs and number of housing units defining the intensity level of each use.

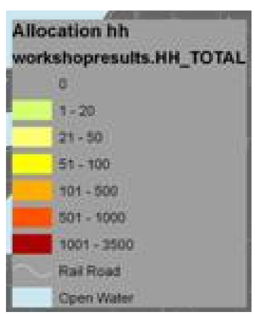
Source: FAI

Figure 2 Chips with at least two hits—all land uses



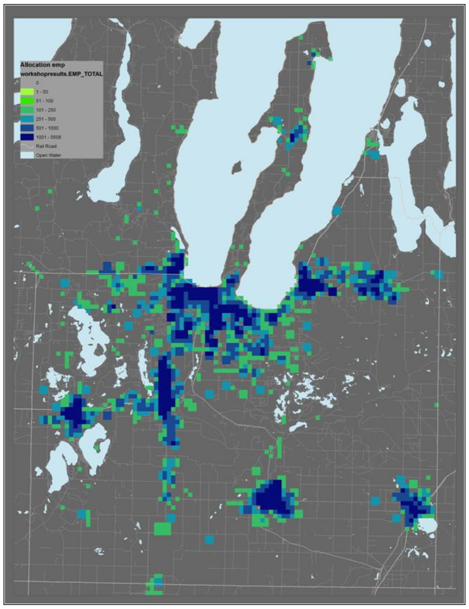
Total Housing Units

This map shows a composite of locations where residential housing unit chips in all categories were placed by all workshop participants. The green color shows locations where very few groups placed housing chips compared to the red color showing locations where many groups placed housing during the workshop exercises.



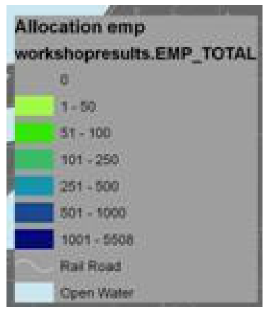
Source: FAI

Figure 3 Total Housing Units



Total Jobs

This map shows a compilation of all of the office, retail, and industrial workshop chips that were placed by all 40 groups. There were fewer chips representing employment placed in the green area while the most chips were placed in the dark blue areas. These results were an indicator to the project team and to the public that there were common areas of agreement relative to regional growth.



Source: FAI

Figure 4 Total Jobs

The workshop results were an important part of the public input portion of the scenario planning process. However, none of the data from the workshops was exported into the traffic modeling process. Regardless of the numbers used as controls and the calculations performed on them, the exercise identified common themes for future growth preferences expressed by workshop participants.

7.1 Small Area Workshops

After planning at the regional level, a series of three small area workshops were held to explore future growth preferences in more detail. The subjects of the workshops were the Central City (Traverse City area), Interlochen Village, and a section of Acme Township. At this point, the 2007 REMI forecast for 2035 was available for the six-county area for population, households, and employment. The 2007 REMI forecast data was used as the basis for the small area workshops and for the county workshops held later in the project.

Table 8 2007 REMI Projections by County

	Population		Employment	
County	**2005**	**2035**	**2005**	**2035**
Antrim	24,404	26,578	11,374	12,547
Benzie	17,574	21,287	8,611	10,117
Grand Traverse	83,954	113,587	65,301	79,791
Kalkaska	17,199	21,719	5,722	6,086
Leelanau	22,030	26,932	10,200	11,091
Wexford	31,799	38,237	19,244	20,793
Total	**196,960**	**248,340**	**120,452**	**140,425**

Source: 2007 REMI Forecasts

The map boundaries for the small area workshops were created without reference to specific jurisdictional boundaries. Instead, the staff at FAI selected a scale that fell somewhere between a human-scale design workshop exercise used to address building type and streetscape preferences and a forecast-type workshop like the one done at the regional level. The small area workshop scale was designed to address questions related to open space, strip commercial patterns, and redevelopment. To get closer to the human scale design workshop, a street cross-section activity was added to the mapping activity. The workshop maps and cross-section activity sheet are included in **Appendix B**.

Once the map limits were established, the staff at FAI used demographic projections associated with the underlying TAZs as a guide for establishing a reasonable incremental population increase between 2005 and 2035. Once the population increment was established for each area, a ratio calculation was applied to create a projected incremental increase for employment and housing units. A chip set was created for each workshop based on the control increments or amount of increase which were:

Table 9 Small Area Workshop Controls

	Population Increment (control total)	Dwelling Unit Control Increments	Employment Control Increments
Central City	4,709	2,757	2,633
Acme	2,017	1,209	1,128
Interlochen	1,672	851	935

Source: FAI

The chips in the set each represented a number of jobs or a number of households or both in mixed use areas like a downtown or village. The chips in these workshop exercises represented land cover area, employment, and population as follows:

Table 10 Small Area Workshop Chips by Development Type

Development type	Acres	Jobs	Households
Downtown	3.67	217	83
Village	3.67	100	57
Main Street	3.67	89	45
Activity Center	3.67	49	16
Arterial Commercial	3.67	34	0
Employment District	3.67	78	0
Industrial	3.67	23	0
Compact Neighborhood	3.67	5	44
Residential Sub	3.67	0	11
Large Lot	3.67	0	4
Rural Housing	14.7	0	3

Source: FAI

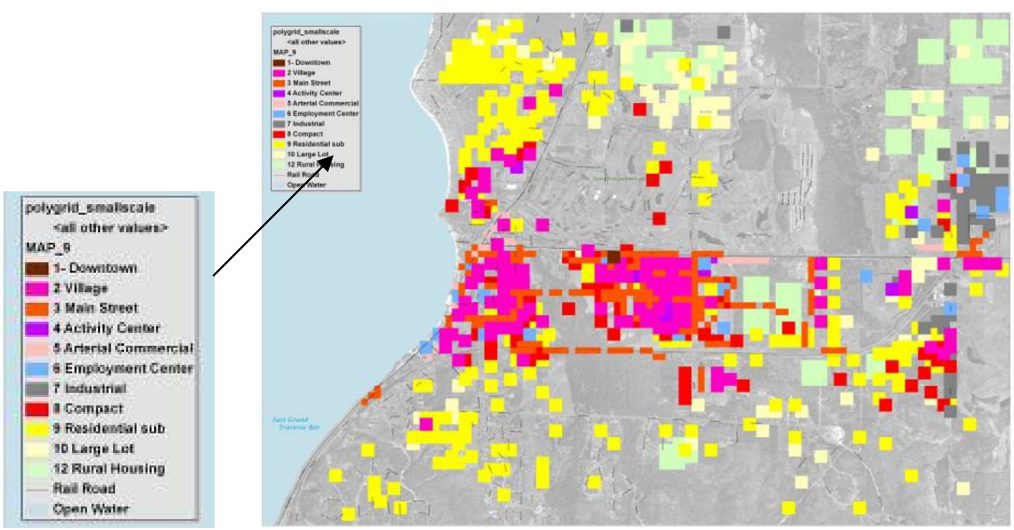
Combining the target household and employment totals with their chip values, the team assembled chip sets that would approach the increment numbers in both categories. In these workshops, participants were given a single set of chips and then a “chip bank” in order to trade for different development types. Trading between the chip packet and the chip bank was permitted as long as the exchange kept the jobs and household numbers constant. A chip guide and a trading guide were provided at each table and facilitators assisted each group. The bank was not intended to limit the amount of trade and in some cases groups traded additional chips from the chip bank at a neighboring table. The chip packets at each workshop contained the following:

Table 11 Small Area Workshop Chip Packet Contents

Development type	Central City	Central City Bank	Acme	Acme Bank	Interlochen	Interlochen Bank
Downtown	12	8	0	4	0	4
Village	14	8	10	4	8	4
Main Street	14	8	10	4	8	4
Activity Center	4	4	2	4	2	4
Arterial Commercial	0	4	0	4	2	4
Employment District	2	4	2	4	2	4
Industrial	0	4	4	4	2	4
Compact Neighborhood	25	10	5	10	4	10
Residential Sub	10	10	24	10	30	10
Large Lot	0	10	10	10	10	10
Rural Housing	0	10	0	10	3	10
Total	**81**		**67**		**71**	

Source: FAI

The workshop results were digitized and used by the project team for analysis. Here are several examples:



Source: FAI

Figure 5 Acme Small Area Workshop—All Chips

Figure 5 shows a compilation of all chips that were placed on all maps during the Acme small area workshop. The color represents the highest chip value placed in each location. Chip values follow the map key with *downtown* the most intense and *rural housing* the least intense.

Participants also indicated transportation preferences with the use of colored markers on the map. The results for all categories including roads, transit, and trails were also digitized. Here is an example of the roads selected by workshop participants at the Central City (Traverse City) workshop. The color of the roads indicates how many times a road was selected by a workshop group. A darker line indicates a higher level of agreement among workshop groups that the road needs improvement.

Source: FAI

Figure 6 Traverse City Small Area Workshop Road Priorities

7.2 Transportation Workshop

A daytime and an evening transportation workshop were held on March 20, 2008, at the Civic Center. Three separate base maps were produced so that the map scale would be reasonable for the activity. Each map represented two counties in a north-south alignment: Leelanau/Benzie, Grand Traverse/Wexford, and Antrim/Kalkaska. The transportation workshop maps are included in **Appendix B**. Participants were first asked to select from the following three packets: road focused, transit focused, and hybrid. The packet contents are shown here:

Table 12 Transportation Workshop Chip Sets

	Road-Focused	Transit-Focused	Hybrid
Transit			
Regional Bus	0	25	15
Urban Bus Circulator	2	20	10
Pedestrian/Bicycle			
Pedestrian/Bicycle-Friendly Streetscapes	5	15	10
Multi-Use Path	10	10	10
Roadway			
Roadway Widening	25	7	15
New Roadways	10	3	5
Street Diet	10	10	10
Total	**62**	**89**	**75**

Source: FAI

The contents of the chip packets were designed to represent transportation investment options with cost as the control feature. Each chip represented one mile of the service or infrastructure option. The goal of the workshop was to allow the public to weigh in on how they would like transportation money spent in the community and how they would like to pay for transportation projects that exceed the existing revenue stream.

To create the controls and contents of the chip packet, the consulting team established a transportation budget based on the following process. First, the 2007 annual expenditures for transportation were compiled from the Federal Government and the Michigan Transportation Fund for the six-county region. This budget number included all state and federal transportation revenue flowing to all local surface transportation agencies in the region: MDOT, county road commissions, cities, villages, and transit authorities. Then the team calculated the proportion of annual expenditures available to make system improvements. The goal was to establish a budget estimate for new transportation infrastructure excluding general maintenance costs. This figure was then used for the base annualized budget or the annual system improvement budget number. The base number was multiplied by 50 to reflect the money being spent during the years through the projected future Vision scenario. The resulting budget number was $300 million. This was far from an exact calculation but was a reasonable representation of the amount of new transportation infrastructure that might be built over the next 50 years. In the transportation workshops, the budget served as a control feature for a scenario planning exercise that provided valuable input about public preferences for transportation investment choices.

A series of industry standard cost resources were used for project cost amounts. Road costs were established using a combination of national trends and the *2008-2011 State Transportation Improvement Program* (STIP) from MDOT. For transit, data from the Federal Transit Administration, Reconnecting America and the *Michigan Transit Strategic Plan 2000–2020* published by the MDOT were all used. Trail cost came from TC-TALUS. The resulting costs by category are:

Table 13 Transportation Project Costs for Transportation Workshop

Project	Cost per mile
Commuter Rail	$14 million
Light Rail	$30 million
Bus Rapid Transit	$10 million
Streetcar	$4 million
Regional Bus	$1-2 million
Urban Bus Circulator	$1-2 million
Roadway Widening	$5 million (highways)/ $2 million (non-highways)
New Roadway	$2 million (per lane)
Street Diet / Traffic Calming	$300,000
Pedestrian / Bicycle friendly streetscapes	$800,000 (per square mile)
Multi-Use Path	$750,000

Source: Kimley-Horn, Associates (KHA)

Participants could add more transportation chips to their overall total if they agreed to fund it with some type of supplemental funding. Funding options included a local millage, a regional gas tax, and a regional sales tax. A worksheet was provided and no limits were placed on the amount of supplemental funding permitted. It was interesting to note that not a single group considered additional funding options and most did not place all of their chips on the map.

7.3 County Workshops

In May 2008 a series of county workshops were held in each of the five counties adjacent to Grand Traverse County:

Table 14 County Workshop Dates and Attendance

County	Meeting Date (2008)	Attendance
Antrim	May 27	150
Benzie	May 28	180
Kalkaska	May 7	195
Leelanau	May 8	205
Wexford	May 27	75

Source: Mead & Hunt

The map limits were the county lines and the population and employment projections were based on the REMI projections for individual counties prepared for MDOT, December 2007. The numbers used as controls are as follows:

Table 15 Population and Employment Control Totals

	Population			Employment		
County	**2005**	**2035**	**Increment**	**2005**	**2035**	**Increment**
Antrim	24,404	26,578	2,174	11,374	12,547	1,173
Benzie	17,574	21,287	3,713	8,611	10,117	1,506
Grand Traverse	83,954	113,587	29,633	65,301	79,791	14,490
Kalkaska	17,199	21,719	4,520	5,722	6,086	364
Leelanau	22,030	26,932	4,902	10,200	11,091	891
Wexford	31,799	38,237	6,438	19,244	20,793	1,549
Total	**196,960**	**248,340**	**51,380**	**120,452**	**140,425**	**19,973**

Source: REMI 2007

Because the projected growth in these counties was small when applied graphically at the county scale, changes were made both to the chip packet development and the workshop activity.

The county-wide scale of the workshop map presented a challenge to the creation of the chip set. Since the chips were to be placed on a map representing a large geographic area, the chips also represented a large geographic area—640 acres each. In response to this size, only residential and open space options were represented with chips. In addition to agriculture and open space chips, there were four residential chip types: rural, rural cluster, large lot, and residential. Units per acre ranged from 0.2 to 3.

Table 16 County Workshop Chips by Chip Type

Chip Type	**Chip size**	**Units Per Acre**	**Households per Chip**
Rural	640	0.2	128
Rural Cluster	640	0.2	128
Large Lot	640	1	640
Residential Neighborhood	640	3	1,920

Source: FAI

Even with the large chip size, the chips could be easily placed on the map without a clear indication of preferences between large lot and compact development patterns. To gain more insight from the workshop exercise, the consultant team multiplied the population increase by four to develop the chip sets for each workshop.

Table 17 Adjustment to County Control Totals

County	Forecast Increment	Adjustment Factor	Adjusted Increment
Antrim	2,115	400%	8,460
Benzie	3,635	400%	14,540
Kalkaska	4,389	400%	17,556
Leelanau	4,820	400%	19,280
Wexford	6,243	400%	24,972

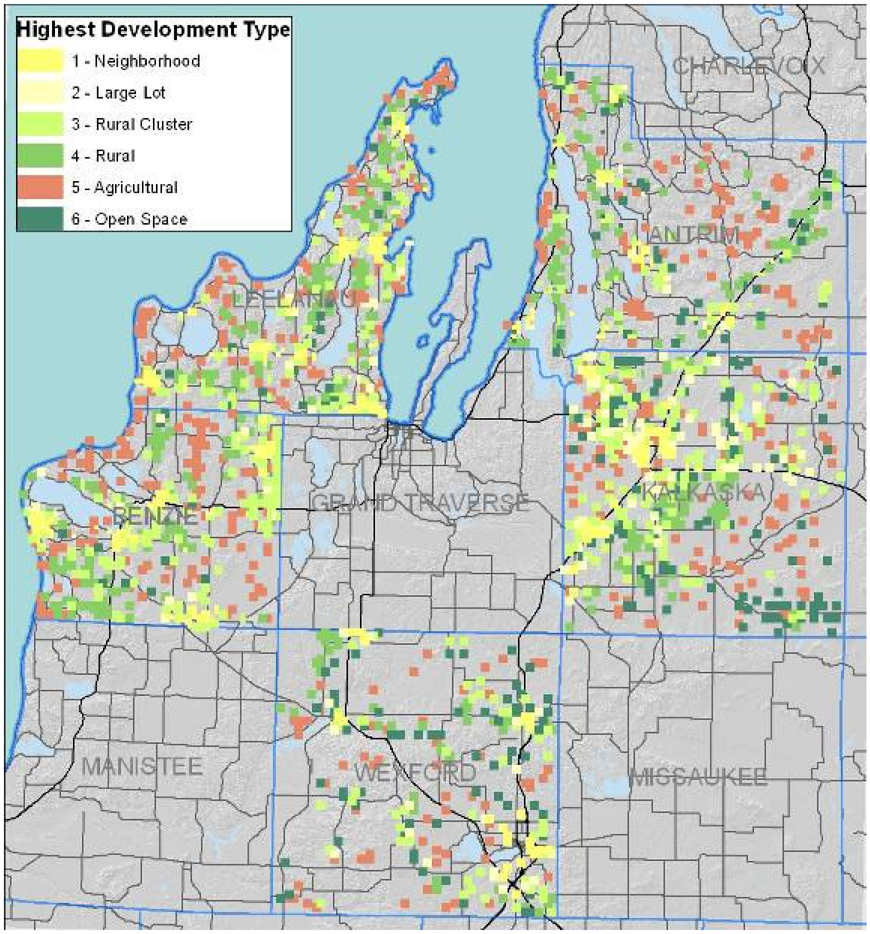
Source: FAI

The workshop presentation explained the chip type with photos and statistics for each category. One slide included a graph depicting the amount of land consumed by 1,000 new homes. Another slide explained that chips could be traded as long and the overall number of housing units remained the same. Rural and rural cluster chips could be traded equally—five rural chips equaled one large lot chip and 15 rural chips were equal to one neighborhood chip.

Input on commercial, employment, transportation, and civic growth or investment was obtained through an open comment method using colored dot stickers on the map and a corresponding comment sheet. The four categories were retail development, civic investments, employment areas, and transportation. Participants would place a dot on the map and a corresponding note on a comment sheet. There was no limit to the number of dots that could be placed on the map.

During this workshop, attendees also participated in a visual preference survey. In this exercise, participants rated the appearance of 42 different photos of houses, businesses, and rural open space. This allowed the consultant team to gather more information about development preferences at a smaller scale than could be expressed by the map.

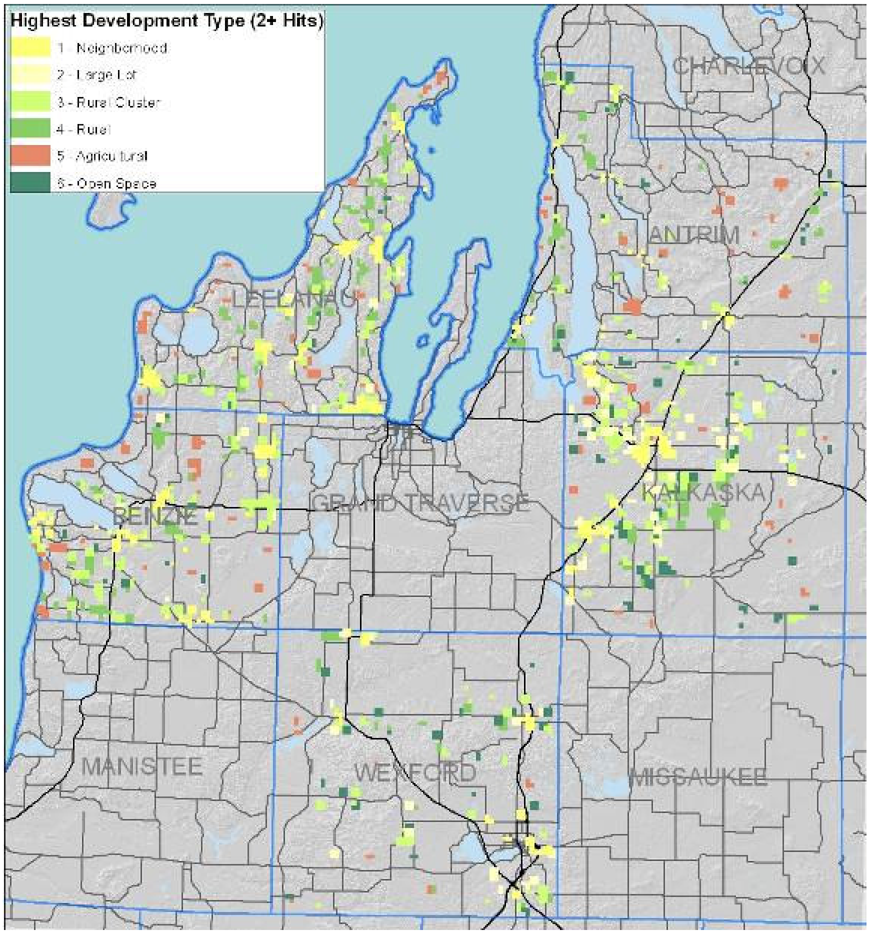
After the county workshops, the results for each county were digitized and included in presentations. **Figure 7** is one example of a composite map of the highest development type placed in each location in each of the five counties. The highest development type is defined by the highest density of housing units per acre or highest intensity of use when agriculture and open space is included. The map legend lists the uses from highest (neighborhood) to lowest (open space) development type.



Source: FAI

Figure 7 Highest Development Type Composite Map

Figure 8 shows where there was more agreement by showing the highest use, as defined above, where there were two or more chips located by different groups:



Source: FAI

Figure 8 Highest Development Type with 2+ Hits Composite Results

7.4 The Four Possible Future Scenarios

After digitizing all of the public input from the scenario planning workshops, four possible future scenarios were developed. The scenarios represented different patterns or themes that had been expressed in the workshops. An explanation of the scenario building process is provided in **Section 8.0** along with demographic distribution statistics. The four possible future scenarios were:

<u>Scenario A – "Trend"</u>

In Scenario A, future growth will follow the existing trend of low-density development in rural areas, with minimal growth in existing cities and villages. Transportation investments will be largely in widened roadways for commuters, and will include some multi-use trails, but minimal investments in bus service and walkability.

Scenario B – "Rural by Design"

In Scenario B, future growth will occur in rural areas, but with new homes clustered to maximize open space. Minimal growth will occur in existing cities and villages. Transportation investments will be largely in new or widened roadways for commuters. This scenario includes some investment in walking and bicycling trails but the effectiveness of transit and walkability for commuting is limited by low densities.

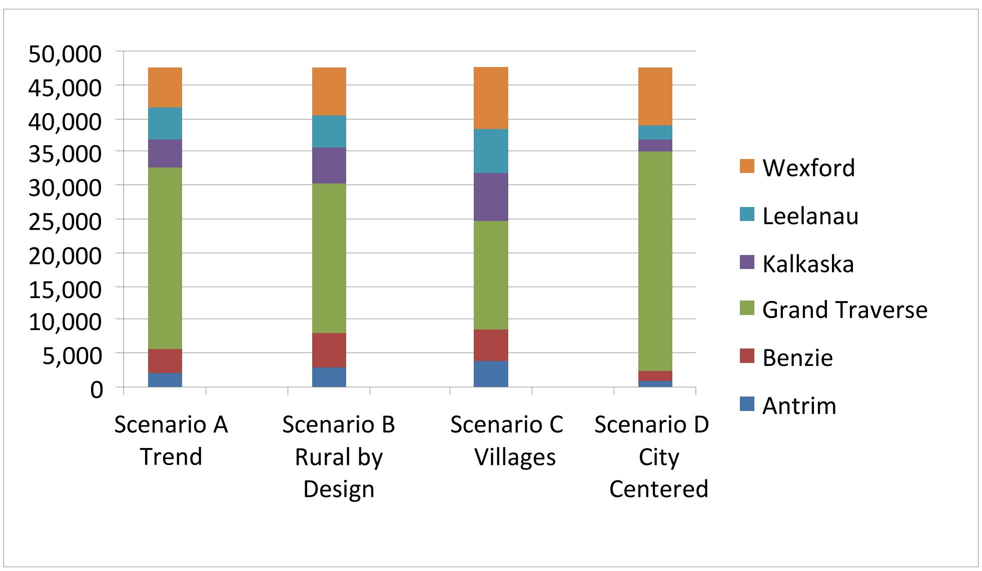
Scenario C – "Villages"

In Scenario C, future growth will occur primarily in the region's cities and villages, with additional growth in the main cities of Traverse City and Cadillac. Large amounts of rural open space are preserved. This development pattern will require investment in regional bus service, sidewalks, and bike trails in villages and cities, with some investments in new or widened roadways.

Scenario D – "City Centered"

In Scenario D, future housing development and job growth will occur primarily in the region's two main cities, Traverse City and Cadillac. Large amounts of open space are preserved. This development pattern will require investment in urban bus circulators, sidewalks, and biking paths in those two main cities. This scenario has limited investment in new or widened roadways.

The population total for the six-county region was held constant in each of the scenarios but the population was distributed differently within the counties. This chart shows the population distribution by county between the four possible future scenarios:



Source: FAI

Figure 9 Allocation of Incremental Population Growth by County and Scenario

The "Trend" scenario reflects the projected populations by county according to the REMI 2007 projections and the total population is held constant. The other scenarios have the same total population but the individual county totals vary. In scenario D, more population was placed in Grand Traverse and Wexford Counties with its development concentration in Traverse City and Cadillac.

More detail is provided about the population, housing, and employment distribution in **Section 8.2**.

The "Scorecard" included land use, housing, and transportation indicators for each scenario in terms that were easy to understand. Land use and housing indicators included new housing units in walkable areas; acres of farm and forest land consumed; and new homes and multifamily units. The land use and housing data was created directly from the scenarios using the EnvisionTomorrow modeling tool, an ArcGIS plugin that provides statistical analysis of scenario decisions. The modeling process is explained in **Section 8.0** and the EnvisionTomorrow modeling tool is explained in **Section 8.3**. The "Scorecard" also included four transportation indicators. The transportation indicators were annual hours spent driving; total cost of lane miles needed; annual household gas expenditure; and annual tons of C02 emissions. Transportation indicators were provided by exporting data from EnvisionTomorrow in a Microsoft Excel format and using the data as an input for the traffic model. The traffic modeling step is described in detail in **Section 9.0**. Since a set of indicators was produced for each scenario, it was possible to compare their performance in the different categories.

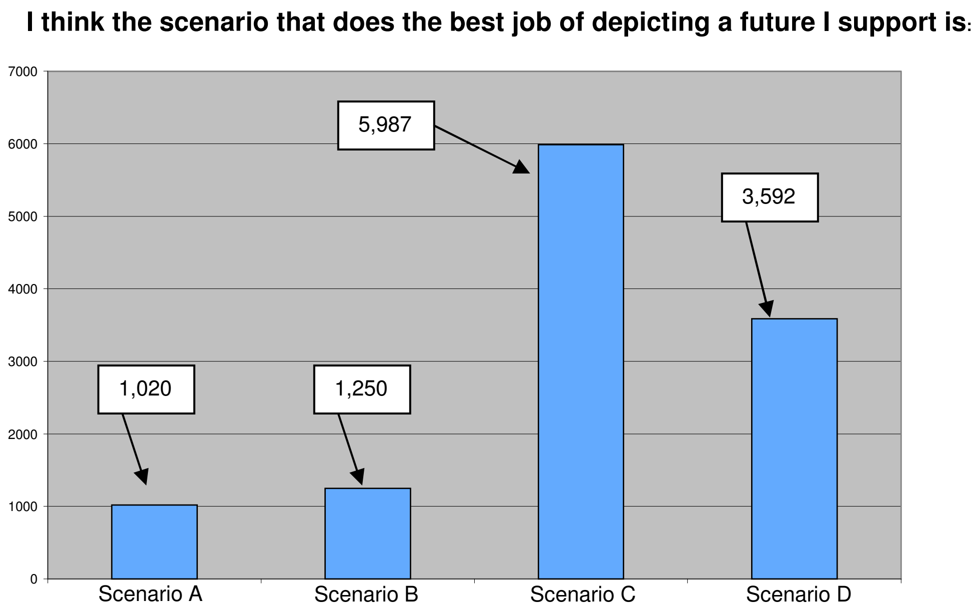
The four possible future scenarios were unveiled at the State Theatre on October 7, 2008, and then in each county in the study area over the following week. Dates and attendance are summarized in this chart:

Table 18 The Vision Decision Kick Off

Location	Date	Attendance
State Theatre	10/7/2008	510
Leelanau County	10/13/2008	65
Kalkaska County	10/9/2008	90
Antrim County	10/14/2008	80
Benzie County	10/14/2008	104
Wexford County	10/13/2008	40

Source: Mead & Hunt

Residents of the six-county area were then asked to provide their opinion on the scenarios. A total of 13,940 responses were received through a combination of paper ballots and on-line responses. The responses indicated a preference for the "Villages" scenario (C) with support also shown for the "City Centered" scenario (D). Overall, the responses can be summarized by the following chart. It represents the total number of responses to the general question about which scenario best represents a preferred future:



Source: Mead & Hunt

Figure 10 Response to Question 5: Grand Vision Scorecard

As a result of the public input, a final preferred regional Vision was created graphically and presented to the public in the *Vision* document that included the Vision map and supporting text. The final Vision map is included in **Appendix D**. The public provided comments on the draft *Vision* document, including the Vision map, during an extended comment period that began with an open house event on February 4, 2009. The final *Vision* document was accepted by the TALUS Board on April 21, 2009.

The final *Vision* document and map will serve the region as a guide for making transportation and land use decisions at the local, county, and regional levels for the next 50 years. Separate from the *Vision* report, the updated socio-economic data and an updated transportation model can be used by MDOT as a long range planning tool. Further discussion of the travel demand modeling steps conducted in cooperation with MDOT staff is included in the *Travel Demand Model Methodology* report.

8.0 Analysis and Modeling Overview

This section describes the land use modeling techniques employed in the six-county region in the creation of the four possible land use scenarios. FAI employed its scenario modeling techniques as a mechanism for testing a range of different future land use patterns for the impacts or benefits with regard to established community values. The graphics included in this section are taken from training materials and other studies done by FAI from different places around the United States. They are provided as a tool to enhance the explanation provided by the report text. The land use modeling process was engineered to feed data to other external models, such as the commonly employed TAZ-based models such as TransCad or Emme2. In the Grand Vision process, the TAZ-based outputs from the land use modeling were used as inputs for the TALUS urban TDM. The output data is presented in **Appendix C** and the traffic modeling is addressed in **Section 9.0**.

8.1 Modeling the future scenarios

The Grand Vision six-county land use scenarios were developed by placing different development types across the entire region to achieve the total projected amount of household and employment growth expected for the region, county-by-county. This practice varies from the traditional practice of locating individual people and jobs. Each development type represents a virtual district wherein a certain ratio of building types combine to create a distinct type of place, such as a main street, transit village, or downtown area. The individual buildings in each district can include single-family homes, mixed-use buildings, regional retail malls, or highway strip commercial, among others.

A specific collection of building types comprises each development type when aggregated. All development types include other supplementary forms of development, including streets, parks, and civic areas. Once the development types are established they can be “painted” onto the landscape. Each development type provides a value of housing and employment densities, floor-area ratios, impervious surface, and other key measures.

In building the scenarios, 12 development types were used. Each development type mimics, or models, a form of development that is already common in the region or is plausible as the region develops. Using the development types as the foundation for the future scenarios generates a database of information that can be used to calculate various estimates and indicators, including total building value, employment and housing densities, new impervious surface (e.g. rooftops and parking lots), the amount of land developed and redeveloped.

8.2 Forecast and Projections

The growth forecasts for population, employment, and housing were based on the 2007 REMI growth forecasts for 2035 by county. The 2007 REMI forecasts were provided to FAI for use in scenario modeling according to the project scope. Using the forecasts as a starting point, the consulting team assigned target numbers as guidelines for the scenario development. The scenarios were built using development types and placed so that the associated households and jobs approached the target numbers. The approach results in a minor variance between the REMI 2007 population and employment forecasts and their allocation. The variance is well within a range for valid modeling results according to the professional modeling staff at FAI.

To engineer scenarios that allow for an "apples to apples" comparison, FAI held all tested scenarios to the regional control of the target numbers developed from the provided forecasts. However, the composition of housing and jobs was varied geographically and through the use of different development types. For example, some scenarios focused more on single-family housing as a growth opportunity while others considered higher density housing options. In some scenarios there was a change in the population distribution between counties, which reflected the theme of the scenario.

The following chart shows the target numbers which were held constant and the variation of population, housing and employment between counties for each scenario. Note that the totals will not exactly match between scenarios due to discreet unit allocations on a per development type basis.

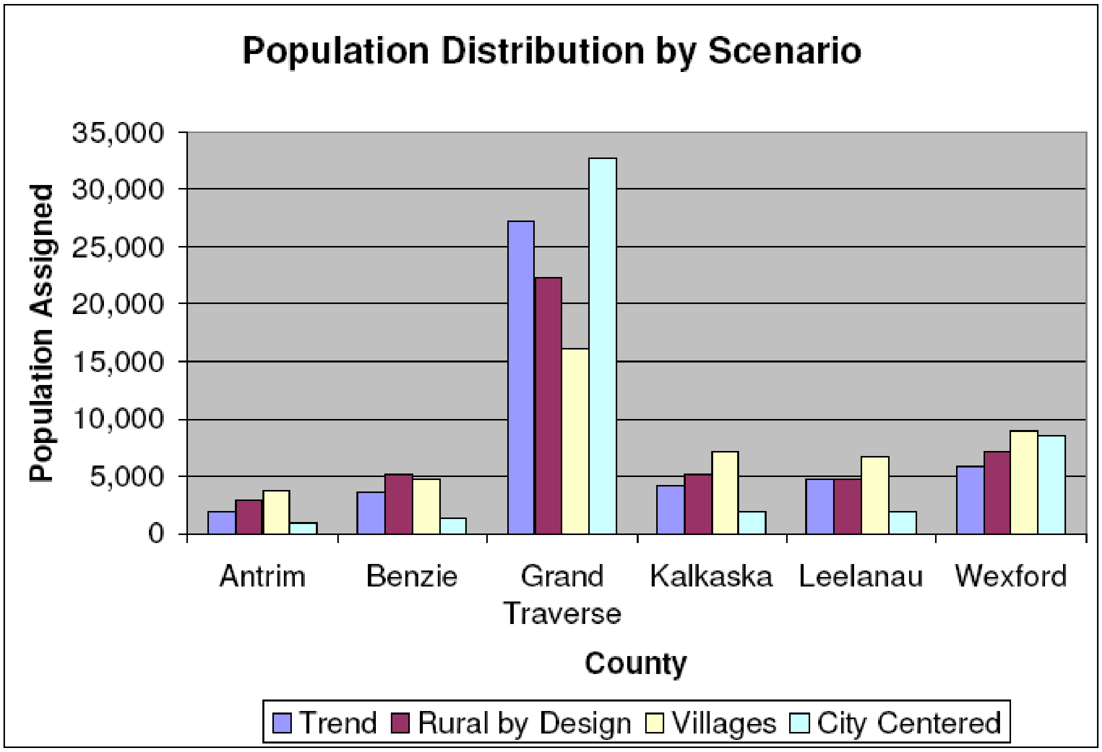
Table 19 Distribution of Population, Housing Units and Employment Growth by Scenario (Incremental change, 2005 to 2035)

	Trend Scenario (A)			Rural Clusters (B)		
	Population (Input Per Forecast)	HU (Allocation)	Emp (Allocation)	Population (Input Per Forecast)	HU (Allocation)	Emp (Allocation)
Antrim	1,983	1,279	1,315	2,849	1,522	1,151
Benzie	3,550	2,243	1,404	5,223	2,724	2,250
Grand Traverse	27,203	12,224	14,176	22,315	11,480	9,540
Kalkaska	4,152	2,652	544	5,223	2,734	2,186
Leelanau	4,774	3,004	1,096	4,774	2,463	2,049
Wexford	5,817	2,935	1,624	7,122	3,639	3,078
Total	***47,479***	***24,338***	***20,159***	***47,504***	***24,562***	***20,254***

	Villages (C)			City Centered (D)		
	Population (Input Per Forecast)	HU (Allocation)	Emp (Allocation)	Population (Input Per Forecast)	HU (Allocation)	Emp (Allocation)
Antrim	3,798	2,078	1,628	950	830	602
Benzie	4,748	2,597	2,046	1,424	1,331	1,039
Grand Traverse	16,143	10,117	7,881	32,760	15,225	12,566
Kalkaska	7,122	2,890	2,204	1,899	1,887	1,451
Leelanau	6,647	3,642	2,798	1,899	1,389	1,015
Wexford	9,021	4,244	3,440	8,546	4,551	3,626
Total	***47,479***	***25,567***	***19,998***	***47,479***	***25,213***	***20,299***

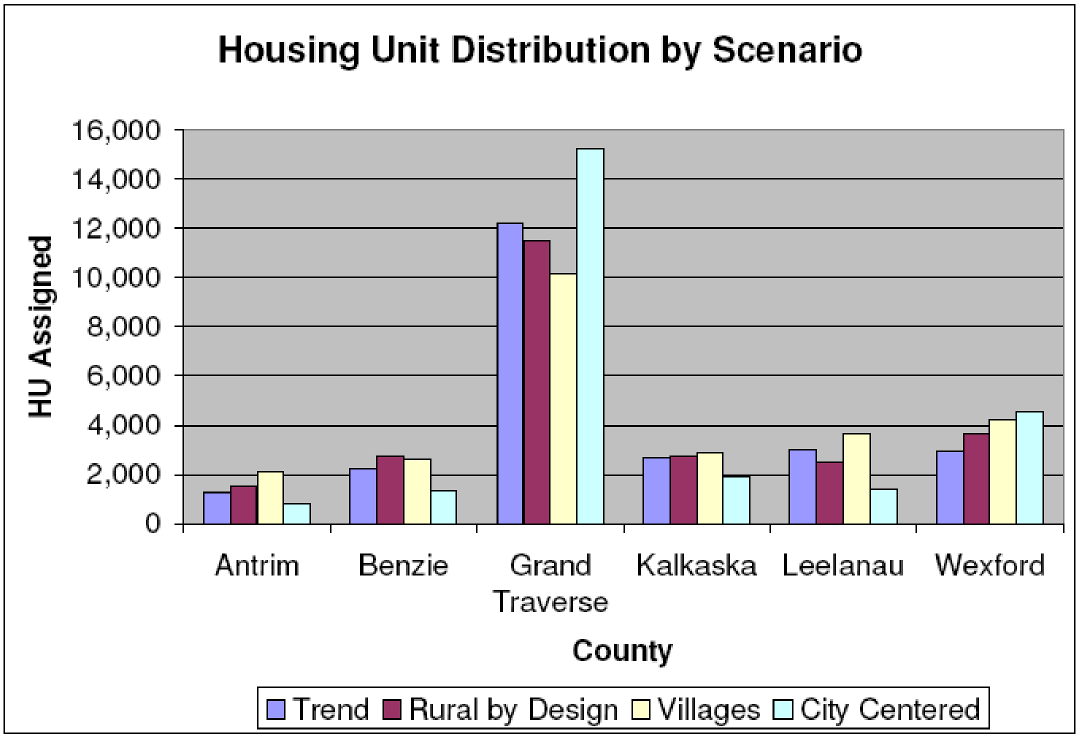
Source: FAI

This data can also be shown graphically. Note that the numbers are the incremental growth assigned to each county rather than the total number. The charts below also show the incremental increases rather than the projected 2035 totals. The county totals vary between scenarios. The "Trend" scenario shows the anticipated future if development patterns continue into the future. In the "City Centered" scenario, Traverse City and its environs will have more population, housing, and employment growth than the "Trend" scenario, which takes development away from other areas. Wexford County and the City of Cadillac will have more population, housing and employment growth with any scenario except the "Trend" scenario. The "Villages" scenario spreads new growth more evenly throughout the six-county region.



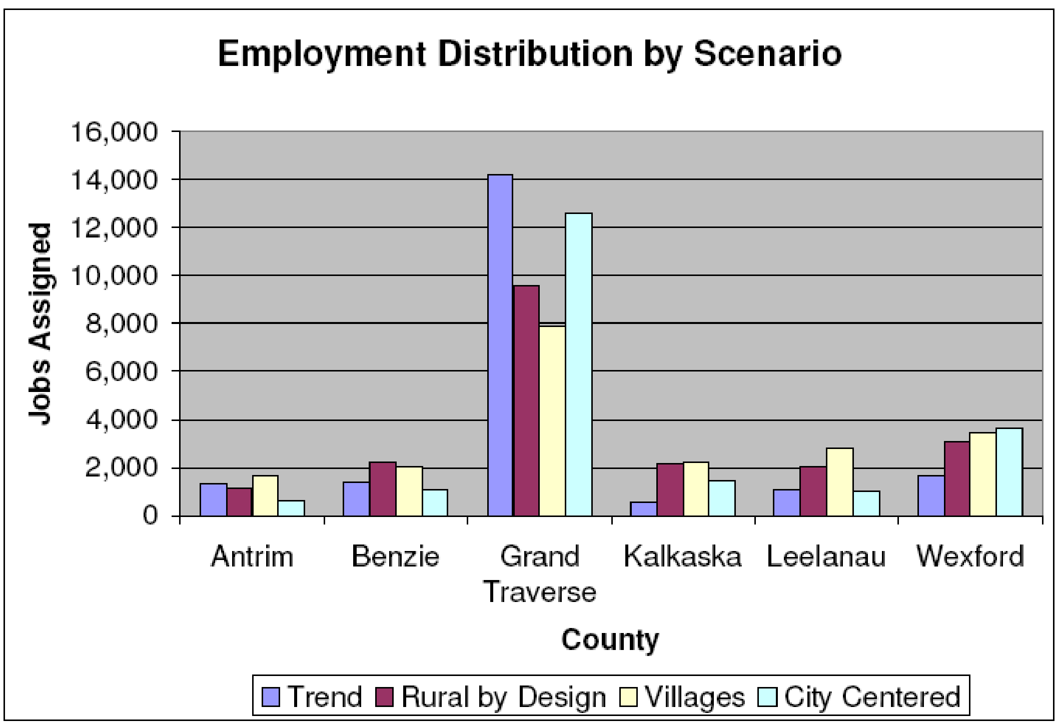
Source: FAI

Figure 11 Population Distribution by Scenario



Source: FAI

Figure 12 Housing Unit Distribution by Scenario

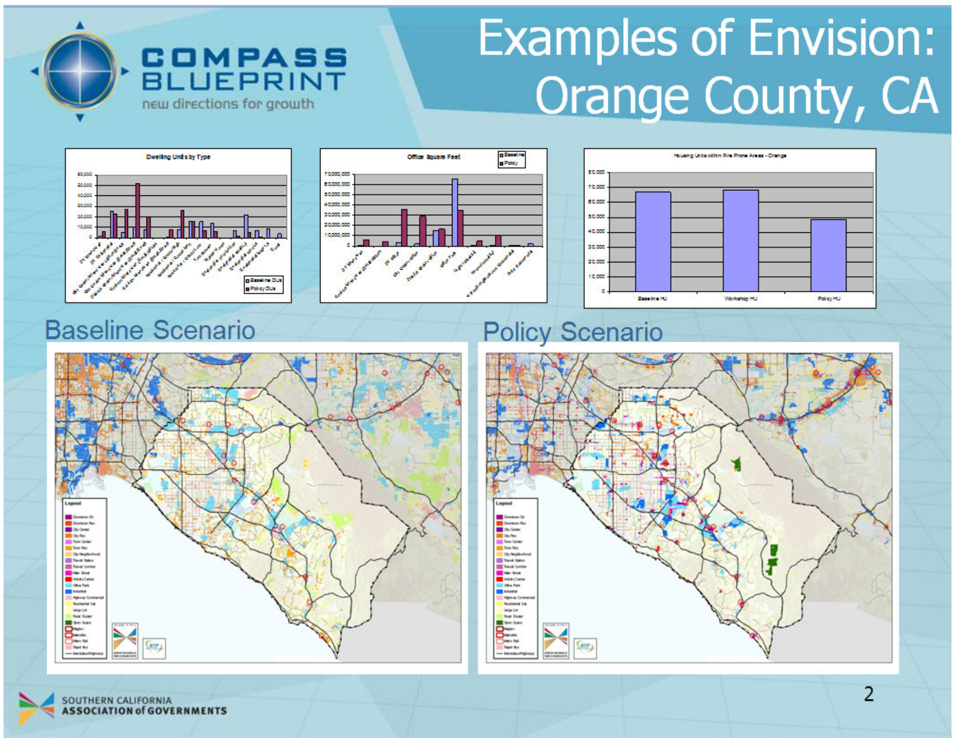


Source: FAI

Figure 13 Employment Distribution by Scenario

8.3 The EnvisionTomorrow Modeling Tool

EnvisionTomorrow is a suite of urban and regional planning tools that can be used to model the development of buildings on a site-by-site basis as well as create and evaluate multiple land use scenarios. EnvisionTomorrow is an ArcGIS plugin that allows users to create and analyze growth scenarios. It seamlessly integrates with Microsoft Excel to provide near-instant analysis of scenario decisions. The process and software are scalable, so scenarios can be created for large regions as well as downtowns.



Source: FAI

Figure 14 Examples of Envision from Orange County, CA

8.4 Allocation Methodology

EnvisionTomorrow is a tool by which the user "paints" the future landscape with development types pulled from the EnvisionTomorrow palette. Following is a description of the steps employed in using the tools to develop the scenarios and provide outputs for external models, primarily transportation.

Step 1 – Constraints

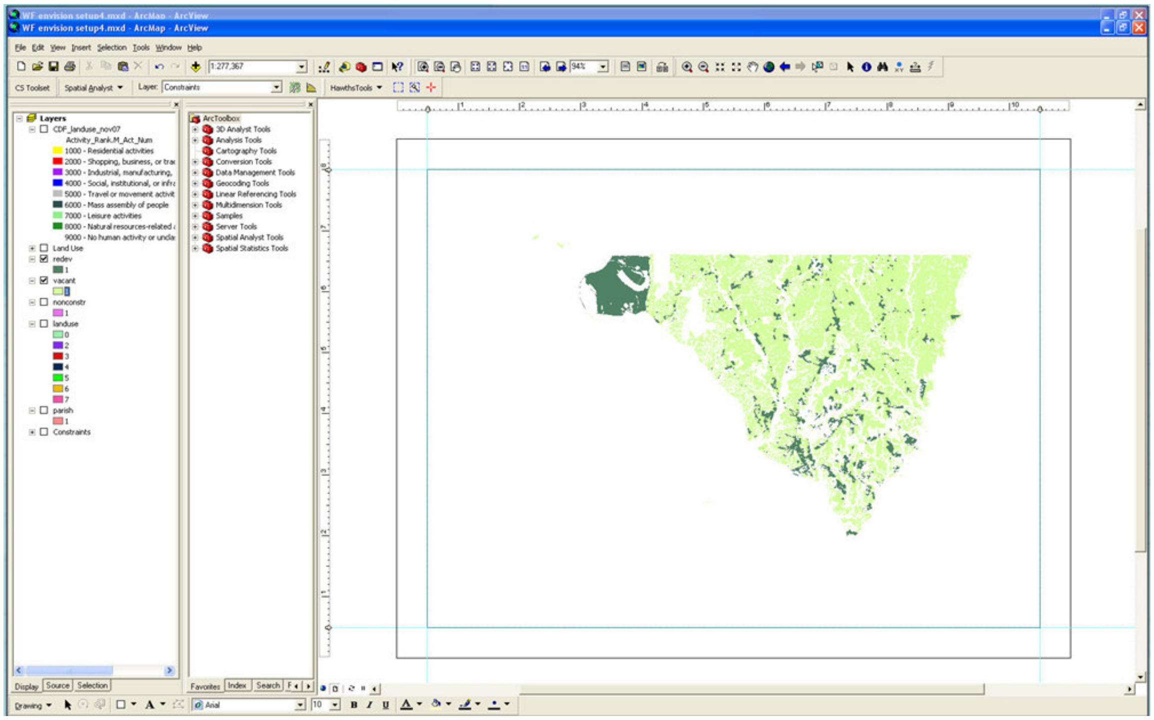
To begin with, the entire regional study area was made into a layer of grid cells into which new growth could be modeled based on previously determined development types. Each grid cell that could be selected to "paint" a development type represented a 2.5 acre area of land.

Land not capable of housing future growth due to environmental constraints is removed from the GIS layers. In the Grand Vision project, undeveloped floodplains, wetlands, steep slopes, and protected public and private lands were removed. Grid cells where environmental constraints occur within their boundaries were considered off limits for placing any new growth by default. Developed land is left in the model but discounted when used for growth as redevelopment and infill. This is because it has both a limited rate of absorption and it displaces existing housing and jobs.

Step 1 – GIS Steps:

1. Determine where not to grow:
    a. Determine Environmental Constraints
    b. Open Water, Riparian Areas, Wetlands, Floodplains, Slopes (>25%), Protected Lands, etc.
    c. You can add as many or as few constraints as you wish
    d. Grid all constraints using Spatial Analyst
    e. Merge constraints layers to form Constraint Grid
    f. Determine where you can grow
2. Determine Buildable Lands
    a. Use existing land use data to determine which land classifications should be considered vacant and which should be considered redevelopable
    b. Create a grid layer of all “vacant” lands
    c. Create a grid layer of redevelopable lands
3. Buildable lands
    a. Start with Land Use data
    b. Determine which Land Use types are Vacant (i.e.- agriculture, etc)
    c. Determine which Land Use types have redevelopment potential (commercial, mixed use, etc)
    d. Convert Land Use data into a Raster Grid
    e. Create Constraints Mask
    f. Create Vacant and Redevelopment Grids
    g. Reclassify Land Use Grid into types that are considered vacant and types that are considered redevelopable

Here is an example of a buildable lands layer:



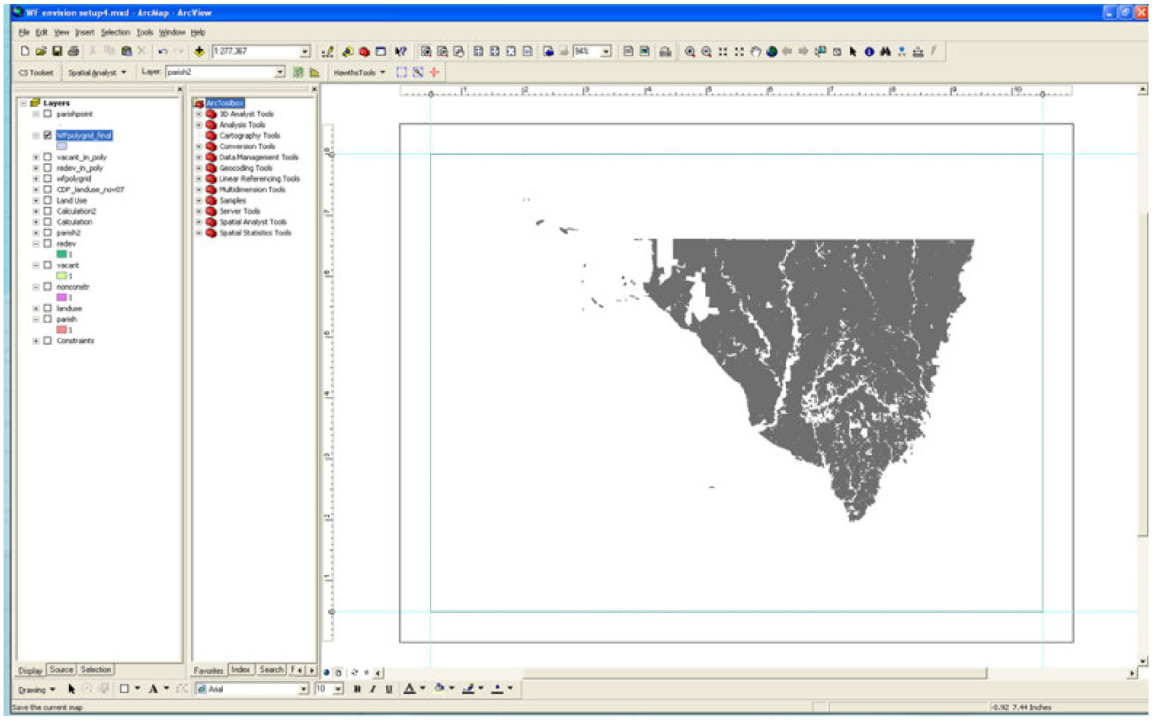
Source: FAI

Figure 15 Buildable Lands Layer Example

Create your canvass

1. Create the Polygrid
    a. Convert project boundary area into a grid file using spatial analyst
    b. Convert raster to point file so that each entry has a sequential, unique ID
    c. Convert points back to polygons

The following screenshots and comments are provided as an effective way to explain this process through text and graphics.



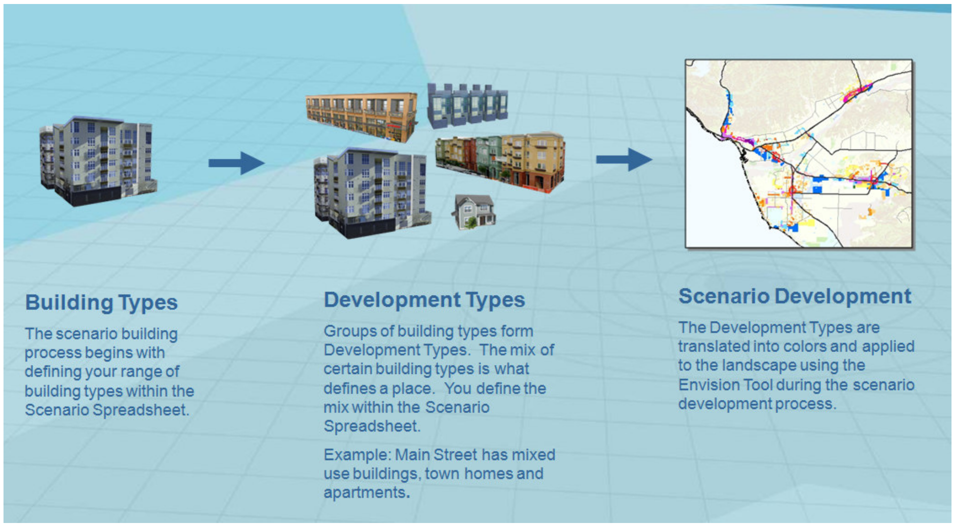
Source: FAI

Figure 16 Grid File Example

The grey area in the map is actually comprised of thousands of square cells, ready for coding by the EnvisionTomorrow tool.

Step 2 –The Development Programs

A series of spreadsheets allow the design team to develop combinations of building types that are applied to the future scenarios. The design team created unique development programs for each of the scenarios. The underbuild factor discussed in **Section 7.0** is one example of the factors applied to each scenario. The mix of multi-family and single-family housing is another example of the variables between scenarios. These differences within the overall control totals become a shaping force for the resultant land use patterns. Additionally, different land use patterns are intertwined with the job composition of an area. For example, typical urban sprawl results in suburban communities that are predominately service sector oriented.

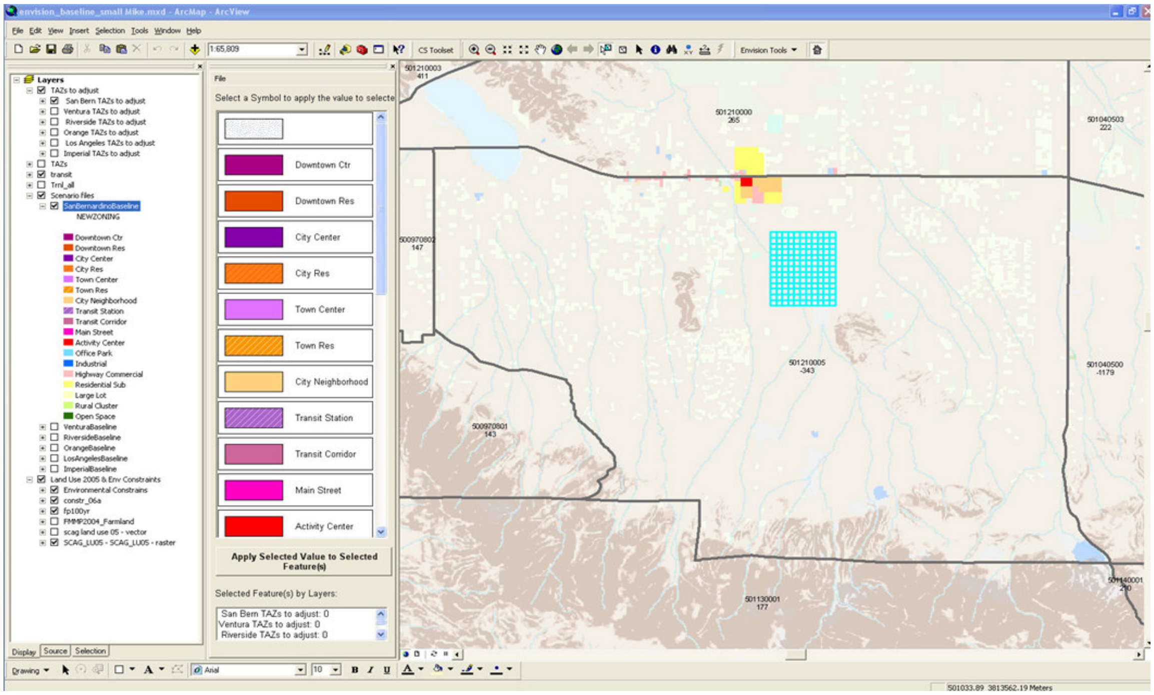


Source: FAI

Figure 17 Scenario development example

Step 3 – Applying development typologies to the landscape via the polygrid

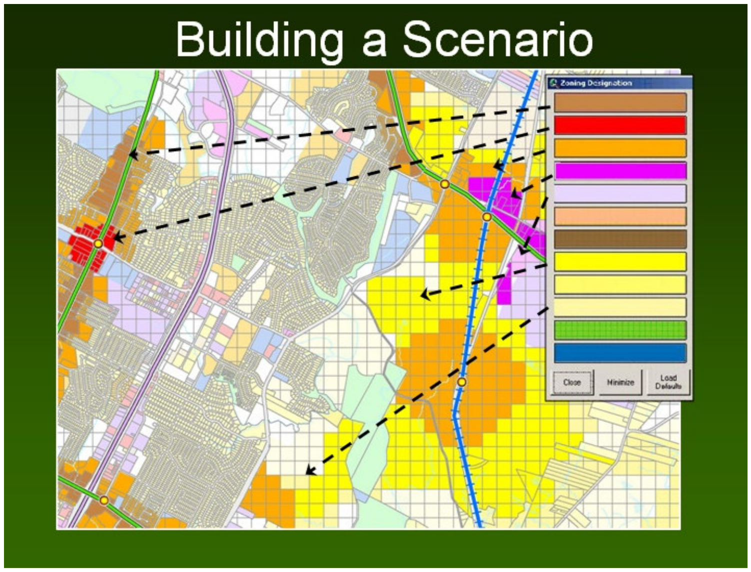
The heart of the scenario building process comes by using EnvisionTomorrow at a macro level of urban design.



Source: FAI

Figure 18 Macro level design example

This screenshot provides an example of how the user selects the development type from the palette and then assigns the typology to the landscape via the polygrid.

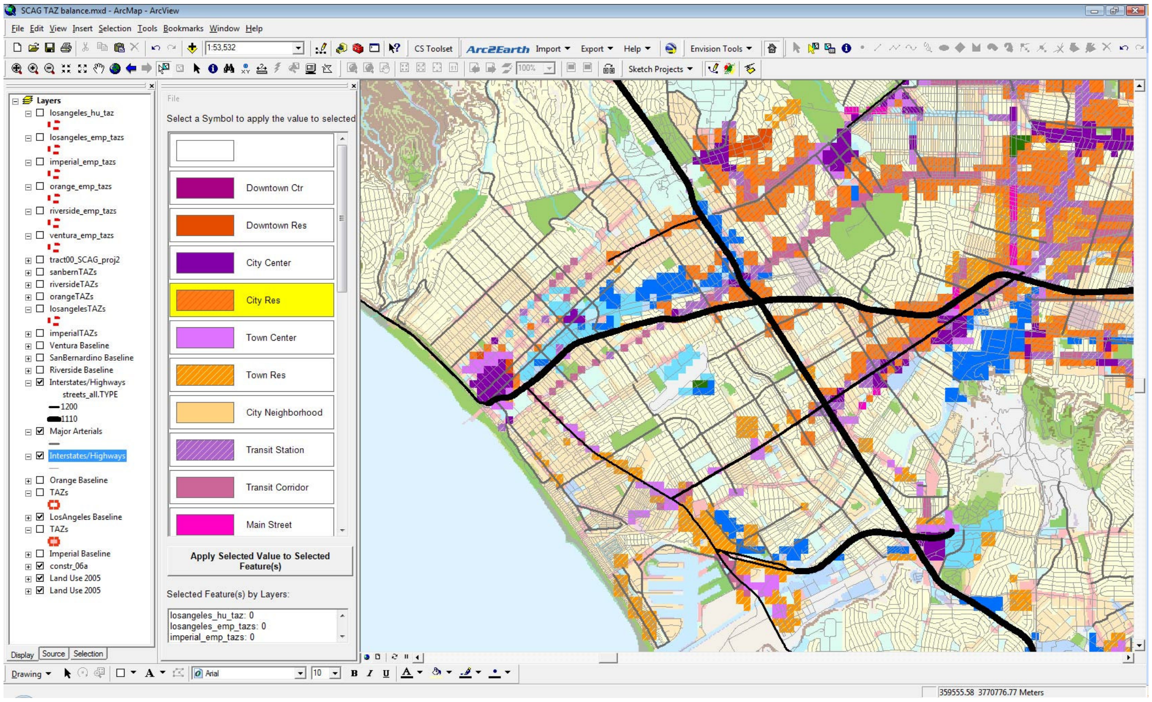


Source: FAI

Figure 19 Assigning typologies--polygrid example

Building scenarios using the methods described here is based on professional assessment of landscape conditions, community values, and knowledge of urban design techniques. Some urban growth models are based on assigning "rules" and performing mathematical formulae upon TAZ data. The Envision method is a process where individuals apply their professional judgment and analytical skills to build the virtual future at a very fine level of detail. For the Grand Vision, the Scenario Builder module was used to evaluate the four future growth scenarios. This allowed planners to "paint" the landscape with different development types and then, using a series of benchmarks or indicators, measure the impacts and benefits from different land use and transportation patterns. Outputs from the Scenario Builder were then used as inputs into the TALUS TDM.

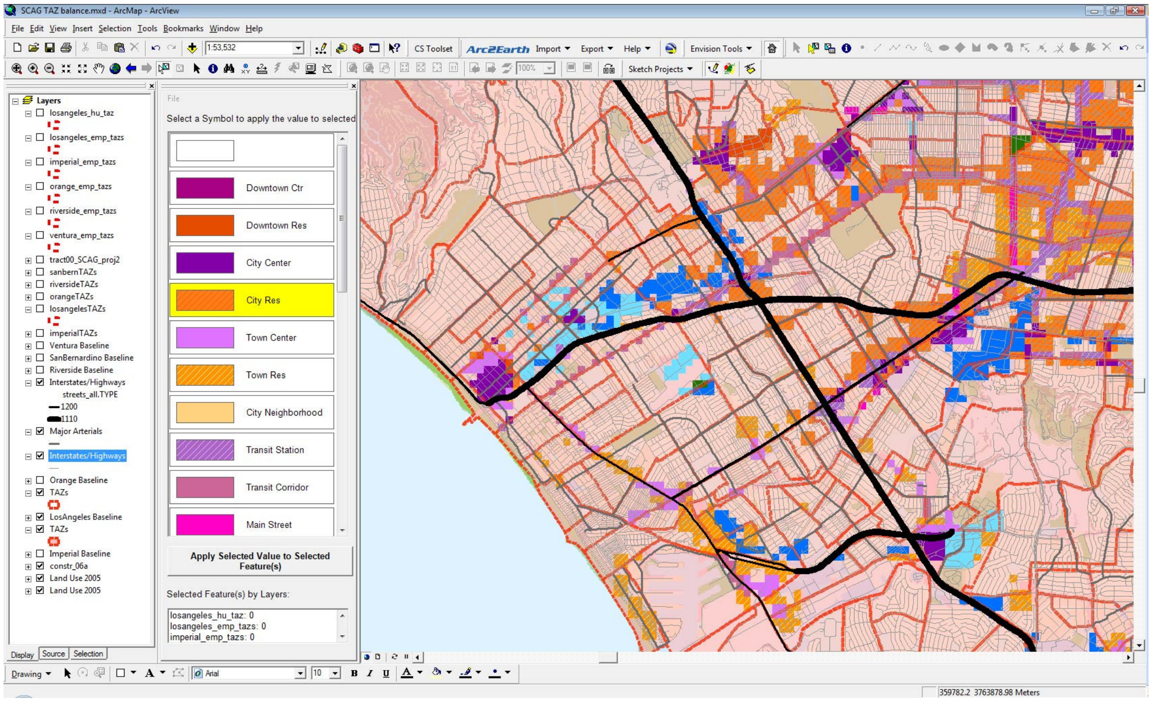
Step 4 – Exporting the data



Source: FAI

Figure 20 Scenario building with EnvisionTool

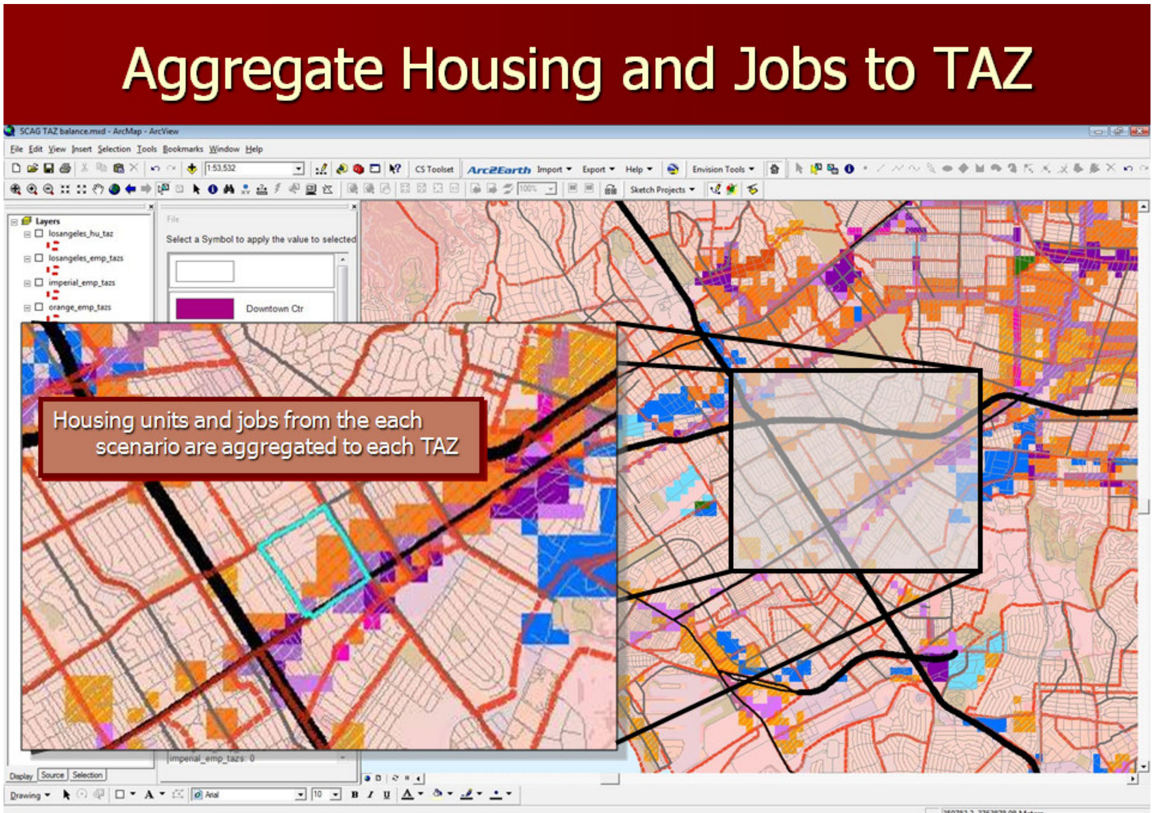
The image above depicts an example scenario from Southern California. The same techniques and tools were used to develop the Grand Vision scenarios. The colors on the map depict the various development types being associated with the landscape.



Source: FAI

Figure 21 Application of TAZ to scenario building

With the same map extent, this image shows the new growth highlighted, plus TAZ boundaries have been overlaid onto the digital map. The development types are assigned at the very detailed "grid cell" level. They are summarized; all the cumulative characteristics of development types, including the amount of land they cover, are summed and applied to the TAZ within which they reside.



Source: FAI

Figure 22 Transfer of incremental growth by TAZ

The population and employment data from the development types are assigned geographically and transferred as data to each TAZ. This output from the scenario planning process becomes the input for the traffic modeling step associated with the four possible future scenarios. In the scenario planning workshops, the employment chips were termed *retail*, *office,* and *industrial* –terms that would be easily understood by citizens participating in the workshops. Employment categories in the TDM are termed *retail*, *service,* and *other*. When the scenario planning data was exported to the TDM for traffic modeling purposes, the "office" category from the scenario planning was the "service" category for the traffic model and the "industrial" category from the scenario planning became the "other" category for the traffic model.

The final Vision map was created through a combination of a GIS base with land use added using the graphic program InDesign which created a graphic product that was visually appealing. There was no specific socio-economic data associated with the final Vision map and the map results were not modeled. This was appropriate because the Vision map is an illustrative map. Its function is to guide regional policy decisions in general terms by reminding decision makers of public preferences about how the region should grow.

To address activities related to traffic modeling of the final Vision map as it might apply to long range planning for the region, the consulting team used the output data from The "Villages" scenario (C). The final Vision map was most similar to Scenario C. For this reason, the consultant team was confident that modeling the final Vision map separately from Scenario C would not change the TAZ forecast in a way that would have a significantly different effect on the network.

9.0 Transportation Demand Model and TAZ data

9.1 Transportation Modeling

For years, engineers and planners have employed the use of transportation models to help evaluate how much traffic will be on their roadways; and in some cases help to predict transit riders. Models come in many scales, from citywide models, to MPO area models, and in Michigan there is a statewide model. The difference between these models is simply the area they cover. Generally speaking, these tools have the ability to connect people from their homes to jobs and shopping using roadways and transit routes. One of the most valuable attributes that these tools have is the ability to predict future traffic patterns. With future population and employment, one can assign people to the transportation system and plan for future infrastructure needs.

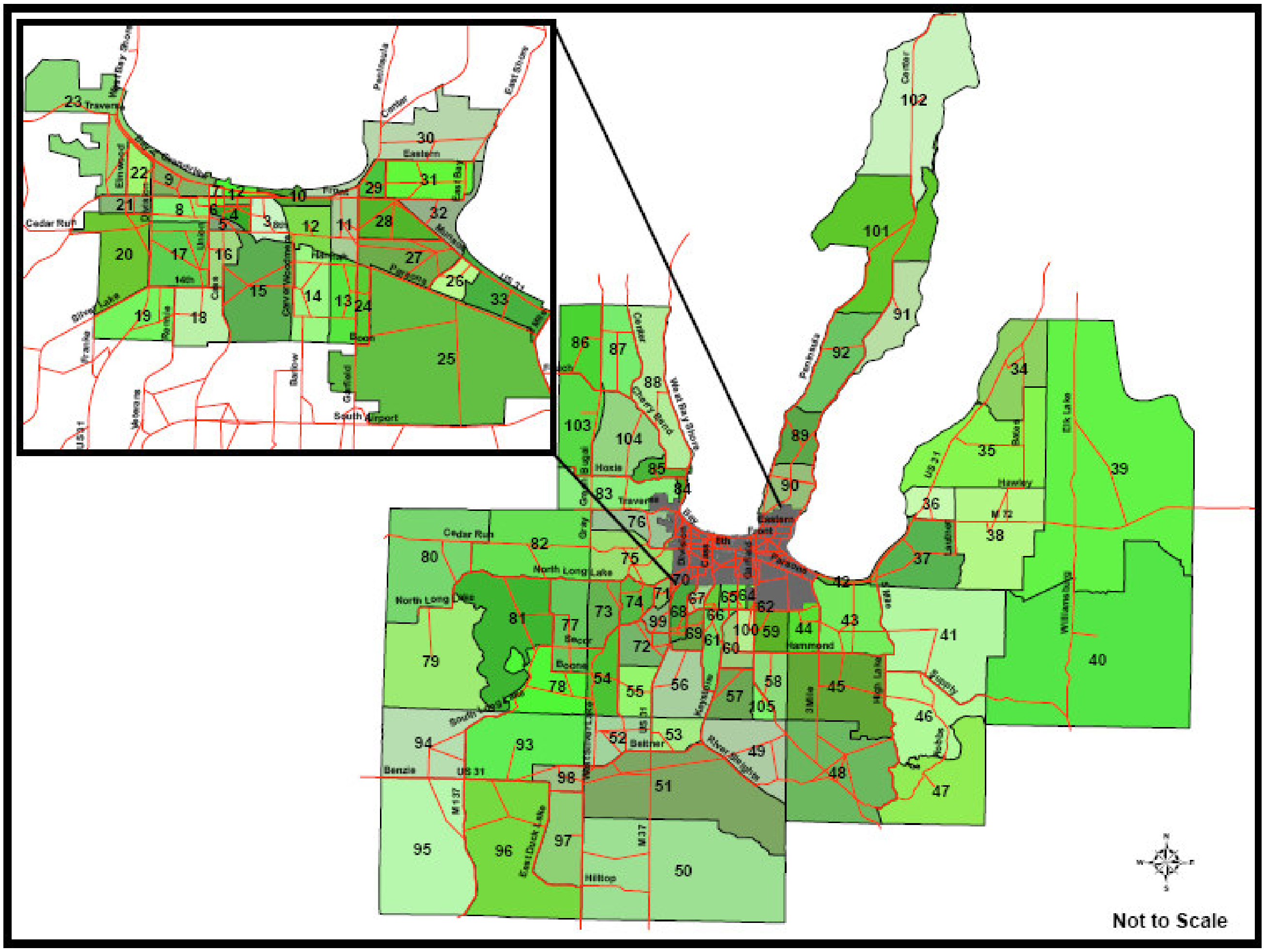
In the six-county region of the Grand Vision, there is an urban TDM for the TC-TALUS area which includes Traverse City, nine townships in Grand Traverse County and Elmwood Township in Leelanau County. The TC-TALUS urban TDM was the only transportation model used during the Grand Vision project. There is also a statewide model for all of Michigan.

During the Grand Vision project, the 2000 urban TDM was provided to the consulting team by the Statewide & Urban Travel Analysis Section of MDOT. The TDM projects future travel patterns based on projected future land use expressed through households and employment. It also reflects anticipated transportation improvements.

For the scenario analysis, the 2000 urban TDM was refined and calibrated based upon new traffic count and origin and destination data to reflect 2007 conditions. In order to do this, the population and employment numbers were updated to 2007 for model validation. The methodology of this update process is documented in the *Travel Demand Model Methodology* report. No other changes were made to the transportation model for the scenario analysis.

9.2 Testing the scenarios

During the regional planning process, the four possible future scenarios were run through the updated urban TDM to predict 2035 transportation conditions. The scenarios contained housing and employment data which were classified geographically into the TAZ using EnvisionTomorrow. The data was then exported in a Microsoft Excel spreadsheet format and used as input into the updated urban TDM. The exported data is listed by TAZ for each scenario in **Appendix C**. (NOTE: Input data used for the scenario analysis is presented in this report, the input data was refined for use in subsequent transportation modeling.) A map of the TAZ boundaries in the TC-TALUS model area is provided below with an inset map for the downtown Traverse City area. Only the scenario data that was located geographically within the TC-TALUS boundaries was included in the transportation demand modeling. This was the only time during the Grand Vision project that data was exported and used with the urban TDM.



Source: TC-TALUS and MDOT

Figure 23 TC-TALUS TAZ Boundaries with Identification Numbers

(Color gradient is used to clarify TAZ boundaries only)

Within the transportation model, the housing and employment data was converted into trips and the trips were placed onto the transportation system. The transportation model output provided statistical data about how each scenario performed in 2035. The model gave numeric values for vehicle miles travelled, vehicle hours travelled, and value of time lost per year. It also provided numeric data on gallons of fuel wasted annually and emissions affecting air quality. The data was a measure of each scenario's independent performance in 2035. It was not a relative measure of change from current to future conditions.

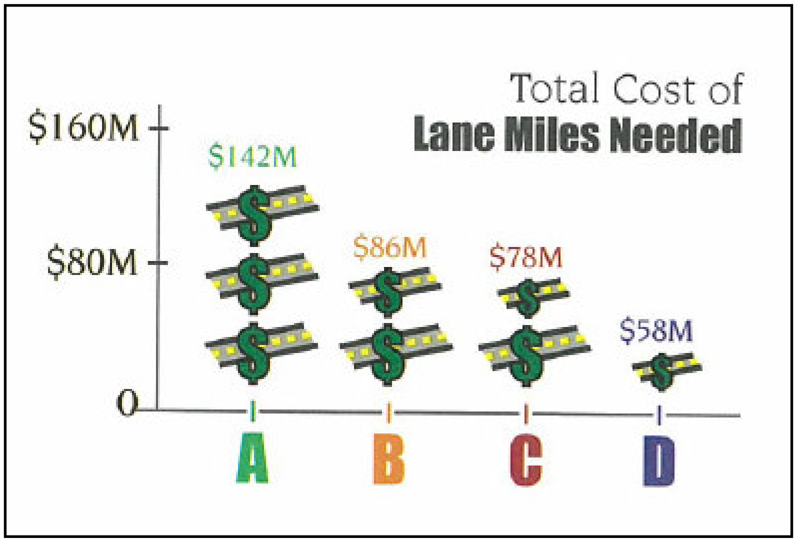
Table 20 Transportation Analysis of Future Scenarios Using Base Transportation Model

(Data from transportation model created September, 2008 and used only for scenario analysis)

Scenario:	**Base**	**City**	**Village**	**Cluster**
VMT	2,860,000	2,560,000	2,660,000	2,710,000
VHT	59,100	52,000	54,000	54,900
Delay	4,900	3,600	3,600	4,000
Additional Lane Miles	142	58	78	86
Urban Lane Miles	40	10	18	26
Rural Lane Miles	102	48	60	60
Value of Time Lost (per year)	$ 34,600,000	$ 25,400,000	$ 25,400,000	$ 28,300,000
Gallons of Fuel Wasted Annually	1,070,000	790,000	790,000	880,000
Air Quality (per day)				
NoX(g)	5,300	4,800	5,000	5,100
CO2(g)	18,100	15,900	16,700	17,100
VOC(g)	397	329	364	367

Source: KHA

From this statistical data, graphic transportation indicators were developed for the "Scorecard." For example, the total cost of lane miles needed was shown on a bar graph with road icons and dollar signs serving as the bar for each scenario. The specific dollar value was written above the bar.



Source: The Grand Vision Scorecard

Figure 24 Transportation Indicator Example from "Scorecard"

The audience for the "Scorecard" was the general public. This type of approach communicated information in a format that was easy for the reader to absorb.

After the Vision Decision public input process, the consulting team worked with MDOT staff in the Statewide & Urban Travel Analysis Section to make additional adjustments to the TDM. As part of those adjustments, the MI Travel Counts data was considered as a source of local trip patterns. The additional adjustments are discussed in the companion report titled *Travel Demand Model Methodology*.

The adjusted model will initially guide the development of a LRTP for the region. As long as the region takes active steps to move toward the preferred regional Vision, it will continue to be part of regional transportation planning activities. If development patterns and local decision making continue to support the “Trend” future, the LRTP model may be adjusted.

10.0 Conclusion

A tagline appeared during the public input and polling processes on buttons and bumper stickers reading "Growth Happens. Let's Decide How." This was an apt description of the Grand Vision scenario planning process that allowed residents of the six-county region to make a collective decision about the region's future. Growth will come to the region over the next 50 years. The scenario planning process begins with the message that the future does not have to be a straight line projection based on past trends. Instead, the future can be shaped by decisions made today and in the future. The Grand Vision is about deciding how to grow and then charting a course to get there.

The scenario planning process allows the community to consider a range of possible futures. In some projects, the consulting team leads the process to prepare possible future scenarios. In the Grand Vision project, the process started with the residents creating their own maps of the future. From the beginning, the community insisted on a citizen-led, transparent process. The consulting team provided the tools and the community provided the direction. In all, eleven scenario planning workshops were held including six at the county level, three with a small-area focus and two focused specifically on transportation. Only after the workshops were completed did the consulting team create four possible future scenarios based on themes identified during the workshops.

During the workshops, participants worked with base maps and chip sets that represented the growth expected in the region by 2035. The amount of population and employment expected in the workshop area was used as a control for the workshop. Within the control totals, the project team developed different chip sets and choices for each workshop in order to gather input on a wide variety of topics of interest to the scenario building process. Workshop participants were tasked with placing all of the chips on the map. They didn't get to choose how much growth was coming. Instead, they got to choose what form the growth would take.

The Grand Vision project team used state-of-the-art computer graphic tools and programs to create base maps, manage workshop response data, and create possible future scenarios. EnvisionTool, which was used to create the possible future scenarios, allowed the socio-economic data to be transferred geographically from the possible future scenario maps to the corresponding TAZ. An export of the data from EnvisionTool was then used as an input to the TDM for the TC-TALUS region, resulting in information about how each scenario performed. The traffic model was updated with new socio-economic and travel data as part of the Grand Vision process as well. The results of the public input process are presented in detail in the *Vision* report that was accepted by the TALUS Board in April 2009 and completed with final edits the following month. Several themes from the Vision Decision polling process are noted here as well.

The residents of the six-county region strongly support steering new development to areas where there is already development. This was widely supported because it offers these benefits. First, it spreads new people and new jobs throughout the region which strengthens the economy in each of the participating counties. The equality of shared wealth resonates well with the community's values. Second, it allows growth to occur while still preserving the small-town look and feel of the region. Some new growth in Traverse City and Cadillac is supported but it the appearance and feel associated with a big city are at odds with the community's values. Third, nodes of density around the region allow the preservation of natural resources and agriculture which are both highly valued in the region. The "Villages" approach creates opportunities for walking from home to jobs and services; some opportunities for a regional transit system; and opportunities for infill development with a larger range of housing choices. These results match the community's values of environmental stewardship, physical health and social equality.

At the same time, the community values diversity and is cognizant that there is some divergence of opinion as well. While there is an interest in steering growth to existing population centers, there is also a strong connection to nature that will translate into some new rural housing. While there is an interest in reducing the number of vehicle miles travelled in the region, a safe and efficient road system is still a priority.

The role of the Grand Vision is to help the community take steps toward a desired future. This will be accomplished in part by creating new and different choices for residents and visitors rather than new and different regulations. This report was prepared to document the scenario planning process along with the population, housing and employment projections that were used to develop the workshop chip sets. It will serve as a record of the process and supports the project's goal of transparency. The *Travel Demand Model Methodology* report compliments this one. It explains the traffic modeling tasks performed as part of the Grand Vision project in greater technical detail.

The next steps for the consulting team are products that move from theoretical ideas in the *Vision* document to practical application in transportation and land use systems. A series of Corridor Reports will be written to address existing conditions and future opportunities along ten roadways in the region that are a top-priority for improvement based on factors such as anticipated congestion levels, safety concerns and public preference. These reports will be rolled into a LRTP that will be used to prioritize transportation funding for projects in the region over the next 20 years.

A land use gap analysis will identify instances where existing policies and practices will not lead to the preferred future. Corrective tools and measures will be identified for each of the gaps. Next, the *Preferred Land Use Vision* document will be written to consider those tools and activities in more detail.

The Grand Vision is built on the idea that communities and regions have the power to create a future of their own choosing. The future is not predetermined by the decisions that have already been made but rather is created by the decisions that are made today and in the future. The scenario planning process allowed the community to develop and evaluate several possible futures based on anticipated growth in people, jobs, and housing. This report documents part of the process. From here, future reports will be written to help the citizens of the six-county region move in the direction of the regional Vision.

Appendices

Appendix A - Population and economic projections

- Woods and Poole
- Economic Modeling Specialists, Inc.
- economy.com
- 2003 Regional Economic Models, Inc. (REMI)

Appendix B - Workshop base maps and supporting material

- October 2007 regional workshop map
- Workshop chip guide example
- Small area workshop maps
  - Traverse City
  - Acme
  - Interlochen
  - Cross-section and accessory worksheets
- Transportation Workshop Maps
  - Benzie/Leelanau
  - Grand Traverse/Wexford
  - Antrim/Kalkaska
  - Traverse City inset map
- County workshop maps
  - Antrim
  - Benzie
  - Kalkaska
  - Leelanau
  - Wexford

Appendix C

- Scenarios by TAZ

Appendix D

- Final Vision Map