

ALTERNATIVES ANALYSIS

This supplemental section will describe the process used to map system goal areas and perform alternative analysis on those locations. In order to measure the capability of Michigan's airports to fulfill the air transportation needs of its residents, visitors and the business community, Geographic Information System (GIS) technology was utilized to perform the alternatives analysis piece of the MASP 2008 update. The transportation GIS software TransCAD was used to create all the maps in this document.

The Michigan Statewide Model highway network and Transportation Analysis Zone (TAZ) structure were enlisted to provide the MASP 2008 GIS database with the necessary information for effective alternative analysis. The Michigan Statewide Model Network includes major collector roads and other roads that provide key connectivity between zones. The TAZ system includes 2,307 zones statewide, all of which are overlaid onto the statewide network. For the MASP 2008 GIS effort, airports were analyzed using the statewide network. Each of the goal areas was mapped by joining their locational attributes with TAZ locational attributes.

After mapping the goal data, travel time analysis was performed on each of the goal areas. Travel time analysis is a function that can be performed in TransCAD by using the Network Band feature. Network Bands allow the user to set a certain impedance, or cut-off point, for calculation around a central node.

For the MASP 2008, the only impedance that was used was free flow travel time. Free flow travel time was calculated by fixed time increments using the routes of the Statewide Model network. The resulting Network Bands were colorized by time increment and provided a visual display of the distance that is traveled to reach a goal area. Travel time analysis also made it possible to determine the percentage of goal areas served by selected airports.

Table 66 shows the criteria for defining Activity Centers as established in MI Transportation Plan (2007).

Table 66

Activity Center Criteria		
Criteria	Measure	Threshold
Urban		
Urban Areas/Urban Clusters in Michigan	Population by TAZ	Greater than 5,000 Persons
Nearest Urban Center outside Michigan	Population	Greater than 200,000 Persons (Transportation Management Area (TMA))
Commercial		
General Economic Activity	Total Employment	Greater than 2,500 Employees
Retail Activity	Retail Employment	Greater than 1,000 Employees
Tourism		
Hotel Capacity	Hotel Units	100 or more Units
Annual Lodging Use Tax	Tour Tax	Annual Tax Value \$50,000 or more
Revenue		
Gaming	Gaming Centers	Major Gaming Centers were identified as a characteristic of an Activity Center
State Park	State Park Location	None
Number of Visitors	Person Trips	Annual Personal Trip Total Greater or Equal 1,000,000
Length of Stay	Person Days	Annual Personal Trip Total Greater or Equal 3,000,000
Education/Technology Center		
Postsecondary Education	Type of Postsecondary Cntr.	Community Colleges and Universities
Smart Zones	Technology Centers	All Smart Zones
Life Sciences Facilities		
Hospital	Local Employment	Greater than 500 Employees
Correctional Facilities		
Prisons	Prison Facility Locations	All Prison Facilities were identified as a characteristic of an Activity Center
Passenger Facilities		
Air Passenger	Passenger Enplanements	All Airports with Passenger Enplanements
Amtrak	Passenger Stations	All Active Passenger Stations
Intercity Bus Station	Passenger Stations	All Active Intercity Passenger Bus Stations
Car Pool	Number of Lots	All Parking Lots
Freight Facilities		
Air Cargo Ports	Cargo Deplanements	All Airports with Cargo Deplanements
Marine Ports	Cargo Tonnage	All Cargo Ports Receiving or Shipping Tons of Goods
International Border Crossing		
Passenger and Freight	Passenger and Freight	All International Border Crossings with Passenger and Freight Activities

Source: MI Transportation Plan

