PAWS Criteria Methodology

Each hexagon received a binary score per criterion (1 point or 0 points). Scores for all criteria were added together to produce the total.

Infrastructure Supply:

Data Point	Scoring Approach	Process Notes	Score Field Name
Within a five minute walk of a transit stop (400m or ¼ mi)	Hexagons overlapping with ¼ mi buffer around transit stops receive a point	Merged transit stops into one shp. Selected hexagons intersecting with transit stops (search radius 1320 feet).	TransitSc
Calculated ADT, Trunk Highways	Hexagons containing a TH segment over 2,000 ADT receive a point	Cut TH_ADT shp with hexagons. Recalculated TH mileage. Joined hexagons to TH_ADT. Dissolved on hexagon ID with highest ADT and total mileage reported. Joined to hexagon shp. TH_Mileage and MaxTH_ADT are the output columns.	ADTSc
ADA sidewalk inventory	Hexagons with ratio of total sidewalk mileage to TH road mileage less than 1, and located in urban areas, receive a point	Cut sidewalk shp with hexagons. Recalculated sidewalk mileage. Joined hexagons to sidewalk. Dissolved on hexagon ID with total mileage reported. Joined to hexagon shp. Selected hexagons intersecting with urban areas shp, and calculated ratio of sidewalk mileage to TH road mileage (SdwkTHRatio). Added urban hexagons with no sidewalks that have a TH.	SdwkSc
Permeability exercise scoring	Hexagons with a segment with ratio greater than 2 receive a point	Cut permeability shp with hexagons. Joined hexagons to permeability segments. Dissolved on hexagon ID with highest ratio reported (MAX_PermeabilityRatio and MAX_PermeabilityWgtRatio). Joined to hexagon shp.	PermeabilitySc

Health:

Data Point	Scoring Approach	Process Notes	Score Field Name
Life expectancy	Assign score of nearest census tract for hexagons in census tracts with missing data. Hexagons with life expectancy lower than MN average receive a point	Selected hexagons that overlap completely or in part with census tracts with null life expectancy and designate as missing life expectancy data (this is 1,448/522,263 hexagons, or 0.2% of hexagons, mostly in the metro area). Selected hexagons completely or partially outside boundary of MN census tracts as missing life expectancy data (this is 4,770 hexagons, or 0.9% of hexagons). Converted census tracts to polylines. Cut hexagons with census tract polylines. Calculated area of cut hexagons and percentage of cut area to whole hexagon area. Joined CT life expectancy to cut hexagons. Removed percentage for CTs with missing life expectancy. Multiplied life expectancy	LifeExSc

Data Point	Scoring Approach	Process Notes	Score Field Name
		by area percentage to create weighted life expectancy. Dissolved on HEXID, reporting sum of created weighted life expectancy, area percentage, missing life expectancy. Selected hexagons completely missing life expectancy data and joined to nearest CT with life expectancy data. Selected hexagons partially missing life expectancy data and corrected life expectancy by dividing weighted life expectancy by the percent of the hexagon area with life expectancy data. CorrectedLifeEx is the column with final life expectancy for all hexagons.	

Land Use Context:

Data Point	Scoring Approach	Process Notes	Score Field Name
On the Map (by NAICS code)	Hexagons receive a point based on two criteria: 1) One or more of the following sectors are represented in the hexagon: Retail Trade (NAICS code 44-45), Educational Services (NAICS 61), Health Care (NAICS 62), Arts, Entertainment, Recreation (NAICS 71), Accommodation and Food Service (NAICS 72), Other Services (NAICS 81). 2) The hexagon has 108 or more jobs in the sectors shown above (greater than the average for these combined sectors)	Calculated total pedestrian generating jobs per point. Joined hexagons to points. Dissolved on HexID and reported sum of PedGenJobs. Joined to hexagons.	PedGenJobSc
Within 1 mile of a K-12 school	Hexagons overlapping with 1 mi buffer around	Selected only schools (not offices/libraries). Selected hexagons intersecting with school layer (radius 1 mile).	SchoolSc

Data Point	Scoring Approach	Process Notes	Score Field Name
	school locations receive a point		

Safety:

Data Point	Scoring Approach	Process Notes	Score Field Name
Buffered cluster analysis	Hexagons with a cluster of 2 or more pedestrian crashes receive a point	Consolidated crash data from all districts. Isolated 2,805 pedestrian crashes. Ran buffered clusters analysis tool to find clusters of crashes within 100 feet of each other. Selected clusters of 2 or more crashes. Selected hexagons intersecting with clusters.	CrashSc
Maximum (TH) intersection safety risk score for non-motorists	Hexagons containing an intersection with score greater than or equal to 3 receive a point	Selected points with intersection safety risk scores of 3 or greater. Selected hexagons that contain those points.	SafetyRiskSc

Equity:

Data Point	Scoring Approach	Process Notes	Score Field Name
Percent population age 5-17	Hexagons greater than or equal to MN average receive a point	Transformed block groups from polygons to polylines. Cut hexagons with BG polylines. Calculated area percentage of each hexagon piece. Selected hexagon pieces outside BG shp boundary or within BG with null values, and designated as outside BG boundary. Spatial joined BG to hexagon pieces. Multiplied area percentage by each equity measure. Dissolved on HEXID, reporting sum of area percentage, sum of each weighted equity measure and outside BG boundary total. Created corrected column for each equity measure and set equal to sum of weighted equity measure for block groups entirely within boundary. Selected hexagons partially in boundary and set corrected column equal to weighted sum of equity measure divided by sum of area percentage. Joined to nearest in BG shapefile. Set hexagons fully outside boundary equal to equity measures of nearest BG. Created score column for each measure.	YouthSc
Percent population age 65+			OlderSc
Percent population with disability			DisSc
Percent population people of color			RaceSc
Percent of population below 200% poverty level			IncoSc
Percent of people without access to a vehicle			CommSc
Linguistic isolation: does not speak			LingSc

Data Point	Scoring Approach	Process Notes	Score Field Name
English well or at all			
Educational attainment: no high school diploma			EduSc
Percent of population non-citizen, foreign born		Used shp of hexagon cut by census tracts created in sidewalks analysis. Joined CT to cut hexagons. Calculated cut hexagon area percentage of total hexagon for cut hexagons within CT area. Left area percentage blank for cut hexagons outside CT area (on boundary of MN). Calculated weighted percent foreign born. Dissolved on HEXID, reporting sum of area percentage, sum of weighted percent foreign born and outside CT boundary total. Joined to nearest CT. Selected hexagons fully outside MN boundary and set corrected foreign born percentage column equal to percentage foreign born in nearest CT. Selected hexagons partially outside MN boundary and set corrected column equal to weighted sum of foreign born percentage divided by sum of area percentage. Selected hexagons fully inside MN boundary and set corrected column equal to weighted sum of foreign born percentage.	ForeignBornSc
Tribal Government areas	Hexagons overlapping with tribal government areas receive a point	Selected hexagons by intersecting with tribal government shp.	TribalGovtSc

Additional Fields

Field Name	Metadata
TH_1MileBuffer	1= Hexagons with centroid within one mile of a trunk highway.
TH_HalfMileBuffer	1= Hexagons with centroid within a half mile of a trunk highway.
District	Hexagons assigned to one of MnDOT's eight districts based on which district the hexagon's centroid is located within. Hexagons on the edges of the state assigned to the nearest district.
Tier_State	Hexagons classified into five tiers based on statewide natural breaks for trunk highway hexagons' TotalSc. Tier 1=12-16, Tier 2=9-11, Tier 3=6-8, Tier 4=4-5, Tier 5=0-3
Tier_District	Hexagons classified into five tiers based on district-level natural breaks for trunk highway hexagons' TotalSc. District 1: Tier 1=11-15, Tier 2=9-10, Tier 3=7-8, Tier 4=5-6, Tier 5=0-4

Field Name	Metadata
	District 2: Tier 1=10-13, Tier 2=8-9, Tier 3=6-7, Tier 4=4-5, Tier 5=0-3 District 3: Tier 1=11-16, Tier 2=9-10, Tier 3=7-8, Tier 4=5-6, Tier 5=0-4 District 4: Tier 1=10-15, Tier 2=8-9, Tier 3=6-7, Tier 4=4-5, Tier 5=0-3 Metro District: Tier 1=13-16, Tier 2=10-12, Tier 3=7-9, Tier 4=4-6, Tier 5=0-3 District 6: Tier 1=11-16, Tier 2=8-10, Tier 3=6-7, Tier 4=4-5, Tier 5=0-3 District 7: Tier 1=10-14, Tier 2=8-9, Tier 3=6-7, Tier 4=4-5, Tier 5=0-3 District 8: Tier 1=10-15, Tier 2=8-9, Tier 3=6-7, Tier 4=4-5, Tier 5=0-3