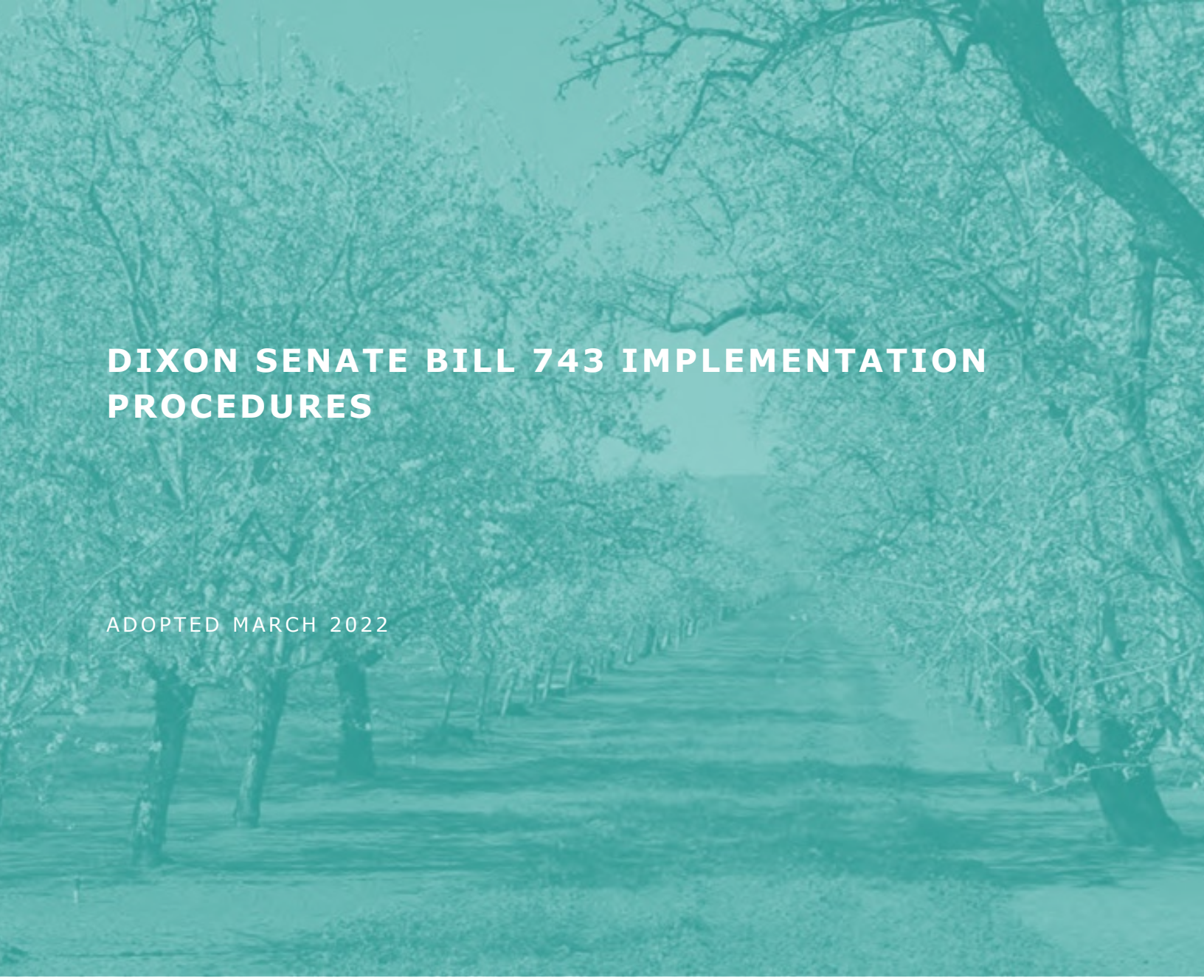

DIXON SENATE BILL 743 IMPLEMENTATION PROCEDURES

ADOPTED MARCH 2022

PREPARED FOR:

CITY OF DIXON

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BACKGROUND AND INTRODUCTION

In accordance with Senate Bill 743 (SB 743) and the resulting changes to the California Environmental Quality Act (CEQA) Guidelines published by the Natural Resources Agency, local agencies may no longer use measures of vehicle delay such as Level of Service (LOS) to quantify transportation impacts on the environment. While agencies may continue to maintain LOS standards and similar measures as a matter of local policy and for project analysis, Vehicle Miles Traveled (VMT) has been codified in the Guidelines as the most appropriate measure for measuring transportation impacts under CEQA. This change took effect statewide as of July 1, 2020.

The change from LOS to VMT for CEQA purposes requires revision of the City's Transportation Impact Analysis guidelines, currently contained in Section 15 of the Engineering Design Standards, which should address VMT thresholds of significance, screening, and mitigation procedures. This report summarizes technical material and provides recommendations on analytical tools, recommended VMT baselines and thresholds of significance, and potential mitigation strategies. Proposed screening and analysis procedures as well as integration into the City's Transportation Impact Analysis guidelines are also discussed.

The recommendations on VMT thresholds and mitigation strategies in this report draw heavily on technical guidance published by the Governor's Office of Planning and Research (OPR) and an evaluation of greenhouse gas and VMT mitigation strategies from the California Air Pollution Control Officers Association (CAPCOA). These documents are listed in the References section. Standards of practice will evolve as jurisdictions use the revised CEQA guidelines and it is expected that the City of Dixon will refine its procedures over time, particularly if the Solano Transportation Authority develops regional guidelines and/or mitigation programs.

SUMMARY OF RECOMMENDATIONS FROM THE OFFICE OF PLANNING AND RESEARCH

Guidelines published by OPR in December 2018 were consulted in developing the recommended approach to VMT analysis in Dixon. Relevant guidance taken from this document is summarized as follows:

- Vehicle Types - OPR guidance specifies that the intent of SB 743 was to capture VMT of passenger vehicles only (autos and light duty trucks) but allows that heavy-duty truck VMT could be included for modeling convenience and ease of calculation. Note that while the Dixon Travel Demand Model (TDM) does not separately estimate passenger and freight trips, the OPR guidance does specify that the vehicle types considered should be consistent across project assessment, significance thresholds, and mitigation.

- Trip versus Tour-Based Methods - While tour-based methods for assessing project VMT are ideal, OPR allows that trip-based methods, such as those used by the Dixon TDM, are a reasonable proxy. The guidance emphasizes the need for consistency in methods across assessing project VMT and setting thresholds of significance.

- Jurisdictional and Model Boundaries - OPR advises that lead agencies should not truncate any VMT measurements because of jurisdictional or other boundaries and should try to apply methodologies to estimate the full extent of vehicle travel.

- Cumulative Impacts - OPR advises that where projects are evaluated based on VMT efficiency metrics (e.g., VMT per capita or VMT per employee), analysis of cumulative VMT impacts is not necessary as long as the project is aligned with long-term environmental goals and is consistent with long range plans.

- Retail Projects - OPR recommends evaluating the VMT impact of retail projects in terms of net change in VMT. Trips to retail sites are typically diverted from other locations and many local-serving retail establishments can reduce overall VMT.

REPORT ORGANIZATION

Section 1 summarizes the recommended thresholds of significance for VMT and approaches to VMT analysis for several types of projects.

Section 2 describes screening of land use projects for VMT impacts. Projects that meet at least one of the screening criteria would not need to perform a formal VMT analysis. Among other screening options, residential and office projects located in low VMT generating areas may be presumed to have less than significant impacts. Rates of VMT per land use unit across different parts of the city have been calculated and can be compared to the recommended thresholds of significance, which are discussed in Section 1.

Section 3 covers VMT mitigation strategies for those projects that have been analyzed and found to have VMT impacts. Methods for assessing the effectiveness of mitigation strategies are also addressed in this section.

SECTION 1. APPROACH TO VMT ANALYSIS AND THRESHOLDS OF SIGNIFICANCE

METHODOLOGY

Projects that cannot be presumed to have a less than significant impact (see Section 2) will require a formal VMT analysis. Projects that would significantly alter existing or planned land uses will also require project specific VMT calculations. The Dixon travel demand model may be used to analyze the VMT characteristics of such projects; VMT tabulation scripts and a VMT analysis spreadsheet have been developed to aid in this process. Alternatively, and with approval from the City, projects can be assessed with a stand-alone or qualitative analysis (e.g., based on the market area of a retail establishment).

Existing baseline VMT rates have been calculated using the Dixon citywide travel demand model, which includes transportation analysis zones within Dixon's sphere of influence. The Dixon model was selected to calculate the VMT thresholds due to its refined zone structure and transportation network. The following additional features of the Dixon model also support this selection:

- External gateway distances (e.g., the I-80 segments entering and existing the model area) have been adjusted to estimate the true trip length of internal-external travel, thus avoiding the truncation of VMT measurements as recommended by OPR.
- The level of internal-external travel predicted by the model is sensitive the to the land use inputs.
- Use of the Dixon travel demand model avoids the issues inherent in being located at the edge of the regional travel demand model. Commute interactions with the Sacramento region are thought to be adequately represented using the previously mentioned gateway distance adjustments.
- The Dixon model is relatively quick and easy to utilize, compared to other available analytical tools.

For more details on the travel model selection and VMT threshold calculation methodology, see the methodology memo in Appendix 1.

RESIDENTIAL AND EMPLOYMENT LAND USES

Table 1 summarizes the calculated baseline VMT rates and recommended thresholds of significance. ***The proposed thresholds are 85 percent of the existing baseline VMT per capita or employee, as calculated over the Dixon model area for residential and employment land uses.*** Projects expected to generate daily VMT per unit at or under the applicable threshold could be presumed to have a less than significant transportation impact for CEQA purposes. Projects expected to generate VMT over the applicable threshold of significance would have to show how VMT could be mitigated to avoid a finding of impact.

For example, a residential development expected to generate 18 VMT per capita could be presumed to have a less than significant impact and no further analysis would be necessary. A residential project expected to generate 20 VMT per capita would need to reduce VMT per unit by 1.5 VMT per capita or about a 7% reduction. Similarly, an office project generating 12 VMT per

employee could be presumed to have a less than significant impact while one generating 16 VMT per employee would have to propose 1.9 VMT (12%) per unit in mitigations to avoid an impact.

Note that for residential and office uses, the thresholds of significance are given in terms of VMT rates, and the effectiveness of mitigation measures will be given in terms of percent decrease. More information on the estimation of VMT rates and mitigation measures may be found in the final section of this report.

TABLE 1: RECOMMENDED VMT THRESHOLDS OF SIGNIFICANCE FOR LAND DEVELOPMENT PROJECTS

(RECOMMENDED THRESHOLDS IN BOLD)

LAND USE	AVERAGE VMT RATE [a]	85% AVG. VMT RATE
RESIDENTIAL	21.8 VMT/capita	**18.6 VMT/capita**
NON-RESIDENTIAL (EMPLOYMENT)	16.7 VMT/job	**14.2 VMT/job**

a) Measured over the Dixon travel demand model planning area which covers the City and its sphere of influence.

OTHER LAND USE PROJECT TYPES

Retail - The recommended threshold for retail projects is net increase in total VMT that occurs because of the project (i.e., any increase in VMT that occurs anywhere because of the project). The OPR technical advisory suggests that "local serving" retail may be presumed to have less than significant VMT impacts due to its potential to reduce the distances required to access services and goods. In contrast, establishments with a regional draw may induce customers to drive long distances to access their unique goods and services.

The OPR technical guidance recommends a size limit of 50,000 square feet for an individual retail establishment to distinguish between local and regional serving retail. Projects consisting of multiple spaces totaling more than 50,000 square feet might also be considered local serving retail if no single establishment is larger. For example, neighborhood centers[1] -convenience oriented centers of up to 125,000 square feet leasable area and typically anchored by a supermarket -could be considered local-serving.

Medical –Medical projects are recommended to be analyzed in terms of net VMT impacts in a manner similar to retail projects. As with retail, providing additional opportunities for healthcare may reduce the lengths of trips made for this purpose. By this line of reasoning, most freestanding clinics, medical practices, and nursing homes could be assumed less than significant with respect to VMT impacts. Larger or regional-serving facilities such as hospitals would likely require an analysis that considers employee and patient VMT separately.

[1] International Council of Shopping Centers, U.S Shopping Center Classification and Characteristics. (January 2017), https://www.icsc.com/uploads/research/general/US_CENTER_CLASSIFICATION.pdf.

Industrial – The CEQA guidelines specify that the VMT to be considered when analyzing transportation impacts is passenger vehicle VMT. Truck trips, often the predominant type at industrial facilities, would not come into play as a transportation impact (although they could be considered with respect to noise, air quality or hazardous conditions). While baseline VMT rates can be developed for industrial employment using the Dixon travel demand model, the model does not distinguish between heavy and light duty vehicle traffic and a threshold of significance set using the model is likely to be unnecessarily restrictive. Instead, industrial land uses can be analyzed on a case-by-case basis to determine the net light-duty VMT impacts of proposed projects. If employee travel is the predominant source of light duty trips at a facility, this component might be assessed against the VMT per employee threshold.

Mixed Use Projects - For mixed use projects, OPR recommends either analyzing each component of the proposed project separately or focusing on the predominant land use. For example, a multifamily residential project with some convenience retail might focus on the VMT impacts of the residential use, especially since the retail component could potentially be presumed less than significant if small enough.

Redevelopment Projects –Analysis of redevelopment projects should consider the VMT of the previously existing use to account for the net impact.

TRANSPORTATION INFRASTRUCTURE PROJECTS

This section discusses the approach to estimating VMT impacts of transportation infrastructure projects. Addition of through lanes or new roadways may induce vehicular travel and thus have a potentially significant VMT impact. The recommended approach for estimating the VMT impacts of such projects is to assess the net change over the area that the new or expanded facility is expected to influence. This calculation may be done with a travel demand model or applying an elasticity of demand as described in the OPR guidelines.

Note that new local roadways built primarily to provide access to individual properties would not need to be analyzed separately as their VMT impact is accounted for in the analysis of the new land use. Also note that there are a wide variety of infrastructure projects that are not expected to induce VMT per OPR guidance. Transportation infrastructure projects that are presumed not to have a significant VMT impact are listed in Table 2.

Caltrans has published documents related to SB 743 implementation as it applies to state highway system. These include the Vehicle Miles Traveled-Focused Transportation Impact Study Guide (May 2020), Caltrans Transportation Analysis Under CEQA (First Edition, September 2020) and the Caltrans Transportation Analysis Framework (First Edition, September 2020).

TABLE 2. NON VMT INDUCING TRANSPORTATION IMPROVEMENTS

IMPROVEMENT CATEGORY
Rehabilitation, maintenance, replacement, safety, and repair projects that do not add additional motor vehicle capacity
Roadside safety devices or hardware installation such as median barriers and guardrails
Roadway shoulder enhancements not used as automobile vehicle travel lanes
Addition of an auxiliary lane of less than one mile in length designed to improve roadway safety
Installation, removal, or reconfiguration of traffic lanes that are not for through traffic, such as left, right, and U-turn pockets, two-way left turn lanes, or emergency breakdown lanes
Addition of roadway capacity on local or collector streets provided the project also substantially improves conditions for pedestrians, cyclists, and, if applicable, transit
Conversion of existing general-purpose lanes (including ramps) to managed lanes or transit lanes
Addition of a new lane that is permanently restricted to use only by transit vehicles
Reduction in number of through lanes
Grade separation to separate vehicles from rail, transit, pedestrians, or bicycles, or to replace a lane in order to separate preferential vehicles (e.g., HOV, HOT, or trucks) from general vehicles
Installation, removal, or reconfiguration of traffic control devices
Installation of traffic metering systems, detection systems other electronics designed to optimize flow
Timing of signals to optimize vehicle, bicycle, or pedestrian flow
Installation of roundabouts or traffic circles
Installation or reconfiguration of traffic calming devices
Adoption of or increase in tolls
Addition of tolled lanes, where tolls are sufficient to mitigate VMT increase
Initiation of new transit service
Conversion of streets from one-way to two-way operation with no net increase in number of lanes
Removal or relocation of off-street or on-street parking spaces
Adoption or modification of on-street parking or loading restrictions
Addition of traffic wayfinding signage
Rehabilitation and maintenance projects that do not add motor vehicle capacity
Addition of new or enhanced bike or pedestrian facilities within existing public rights-of-way
Addition of Class I bike paths, trails, or other off-road facilities that serve non-motorized travel
Installation of publicly available alternative fuel/charging infrastructure
Addition of passing lanes, truck climbing lanes, or truck brake-check lanes in rural areas that do not increase overall vehicle capacity along the corridor

Source: Office of Planning and Research, 2018

SECTION 2. SCREENING PROCEDURES AND TIA GUIDELINES

Evaluation of projects for potential VMT impacts will take place in parallel with the City's existing transportation analysis procedures and screening procedures will play an important role in streamlining project analysis. Projects may be presumed to have less than significant VMT impacts due to small size, proximity to high quality transit, and housing affordability. In addition, projects may be screened according to location. Projects located in areas that have been shown to generate VMT below the selected threshold of significance may be presumed to have less than significant impacts and no further analysis or mitigation would be required.

While measures of automobile delay such as Level of Service (LOS) may no longer be considered for CEQA purposes, the City does retain the LOS performance targets specified in the General Plan as a matter of local policy. Projects may be screened from requiring VMT analysis for CEQA purposes but still require analysis of LOS, safety, access, site circulation, and other topics to meet local requirements. These Local Transportation Analyses (LTAs) will occur in parallel with CEQA VMT analysis and can continue to inform conditions of project approval by the City. For more information on LTA requirements, please refer to the City's Transportation Impact Analysis Guidelines (Engineering Design Standards Section 15).

Once a project's local transportation analysis requirements are determined, VMT analysis requirements can be determined, following the process diagrammed in Figure 1. The VMT screening criteria are further described below.

SCREENING CRITERION: SMALL OR INFILL PROJECTS

OPR advises that ***projects generating fewer than 110 trips per day*** could be presumed to have less than significant VMT impacts. Table 3 shows the maximum project size that would correspond to this threshold based on average ITE trip generation rates for selected land uses.

SCREENING CRITERION: LOW INCOME HOUSING

OPR advises that residential ***projects consisting of 100 percent affordable housing units*** may be presumed to have less than significant VMT impacts. The City may wish to specify additional criteria such as enhanced active transportation connectivity or location within a priority development area for application of this screening option.

SCREENING CRITERION: LOCAL SERVING RETAIL

The OPR technical guidance recommends that retail projects be analyzed in terms of net VMT impacts (i.e., total VMT that would occur with and without the project). By increasing retail opportunities closer to homes and workplaces, local serving retail may decrease overall VMT if it substitutes for longer trips. OPR advises that ***projects of 50,000 or fewer square feet for an individual retail establishment*** may be used to distinguish local serving retail from more regional establishments that draw customers from greater distances.

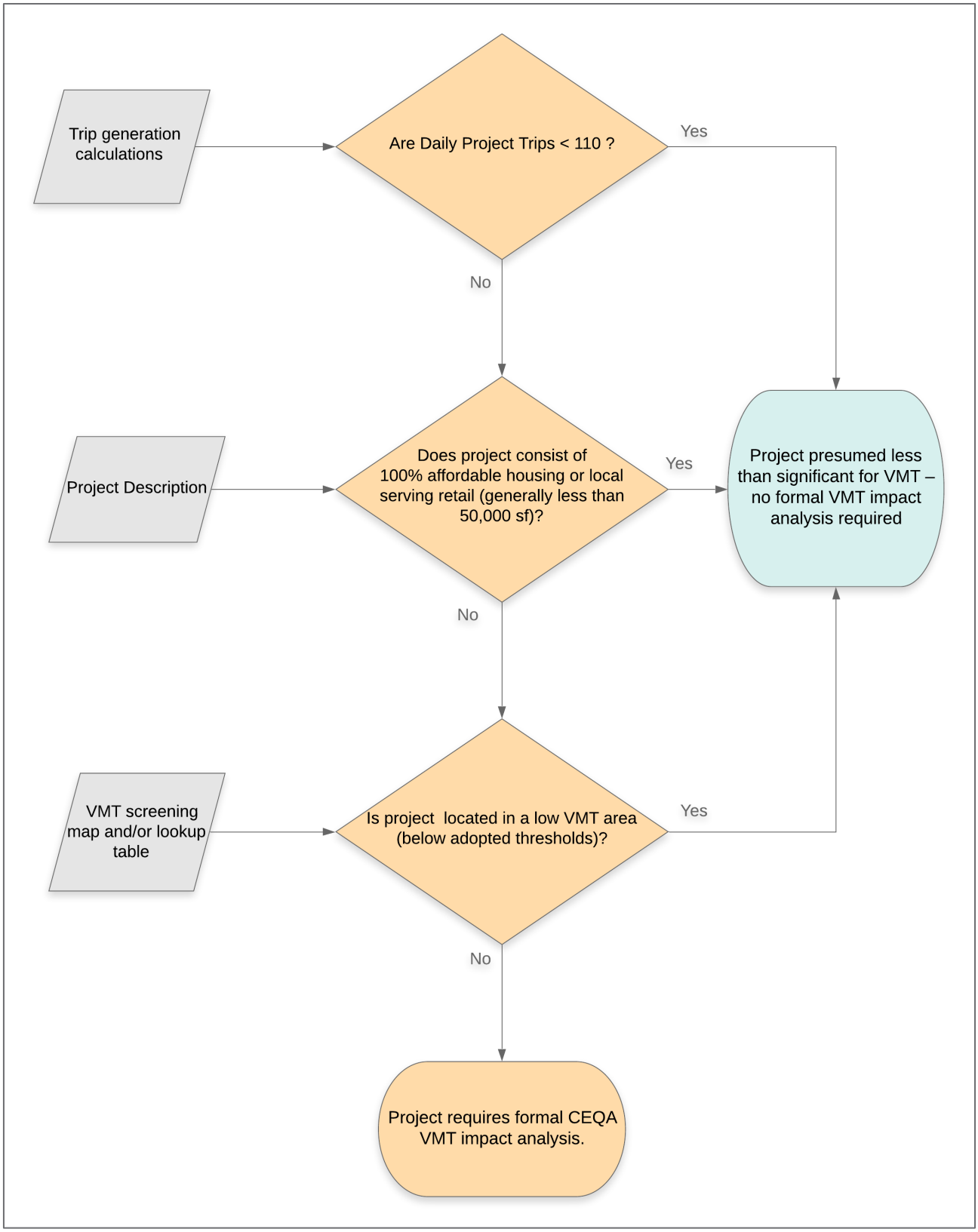

FIGURE 1. SCREENING PROCESS FOR VMT IMPACTS

TABLE 3: PROJECT SIZE THRESHOLDS FOR VMT SCREENING

(GENERATION OF FEWER THAN 110 DAILY TRIPS)

LAND USE	ITE CODE	SIZE THRESHOLD	DAILY TRIP GENERATION
SINGLE FAMILY RESIDENTIAL	210	11 units	104
SINGLE FAMILY RESIDENTIAL ATTACHED	215	15 units	108
MULTIFAMILY RESIDENTIAL - LOW RISE	220	16 units	108
MULTIFAMILY RESIDENTIAL - MID RISE	221	24 units	109
MULTIFAMILY RESIDENTIAL - HIGH RISE	222	24 units	109
SMALL OFFICE BUILDING	712	7,600 square feet	109
SINGLE TENANT OFFICE BUILDING	715	8,350 square feet	109

Source: ITE Trip Generation 11th Edition (https://itetripgen.org/)

SCREENING CRITERION: PROXIMITY TO TRANSIT

Section 15064.3 of the CEQA Guidelines specifies that residential or office ***projects within one-half mile of an existing major transit station or stop along an existing high-quality transit corridor*** can be presumed to have a less than significant transportation impact. Per OPR guidance and Public Resources Code § 21064.3, major transit stops are defined as a site containing an existing rail transit station or the intersection of at least two bus routes with a frequency of service interval of at least 15 minutes during the morning and afternoon peak commute periods. High-quality transit corridors are defined as having fixed route bus service with service intervals no longer than 15 minutes during the peak commute hours.

There is currently no transit service in Dixon that meets these criteria. This criterion could be applied as high-quality transit corridors or major transit stations are added in Dixon.

SCREENING CRITERION: LOCATION IN LOW VMT AREA

The OPR technical guidance discusses screening of residential and office projects based on location. Residential and office projects that locate in areas with low VMT, and that incorporate similar features will also tend to generate similarly low VMT. Maps showing areas that exhibit low VMT characteristics can be used to screen projects from needing to prepare a CEQA VMT analysis.

VMT maps have been prepared for the City of Dixon using the City's travel demand model, which was recently calibrated to a 2019 baseline. The baseline land use inputs are consistent with those used in analyses for the City's General Plan 2040. Additional detail about the calculation methodology can be found in the technical memo included as Appendix 1 to this report.

Figure 2 shows the VMT generation rates for ***residential*** land uses relative to the recommended threshold of significance and should be used to screen residential projects. Figure 3 shows the VMT rates for ***employment*** uses with respect to the recommended threshold of significance and should be used to screen nonresidential projects. These VMT rates have been calculated for the entire area

covered by the Dixon travel demand model and incorporate estimates of VMT that occurs outside the Dixon area.

The maps show the VMT generation rates for each Transportation Analysis Zone (TAZ) and table of VMT rates by TAZ is given in Appendix 2. The VMT screening maps may be consulted as follows:

- Projects located in TAZs that are shown in **green** would be presumed to generate VMT at 85 percent or less of the baseline average rate for the Dixon area, have less than significant transportation impacts, and would require no further VMT analysis.

- Projects located in the TAZs shown in **yellow** would be presumed to generate VMT at more than 85 percent but less than the baseline average rate for the Dixon area (i.e., above the recommended threshold) and would require VMT analysis.

- Projects located in the TAZs shown in **red** would be presumed to generate VMT above the baseline average rate for the Dixon area and would require VMT analysis. Projects located in these high VMT TAZs would be the most challenging to mitigate.

- Areas shaded grey on the map do not currently have any either residential (Figure 2) or employment (Figure 3) land use. Therefore, it was not possible to calculate baseline VMT rates for these areas and projects sited in these areas will require a formal VMT analysis.

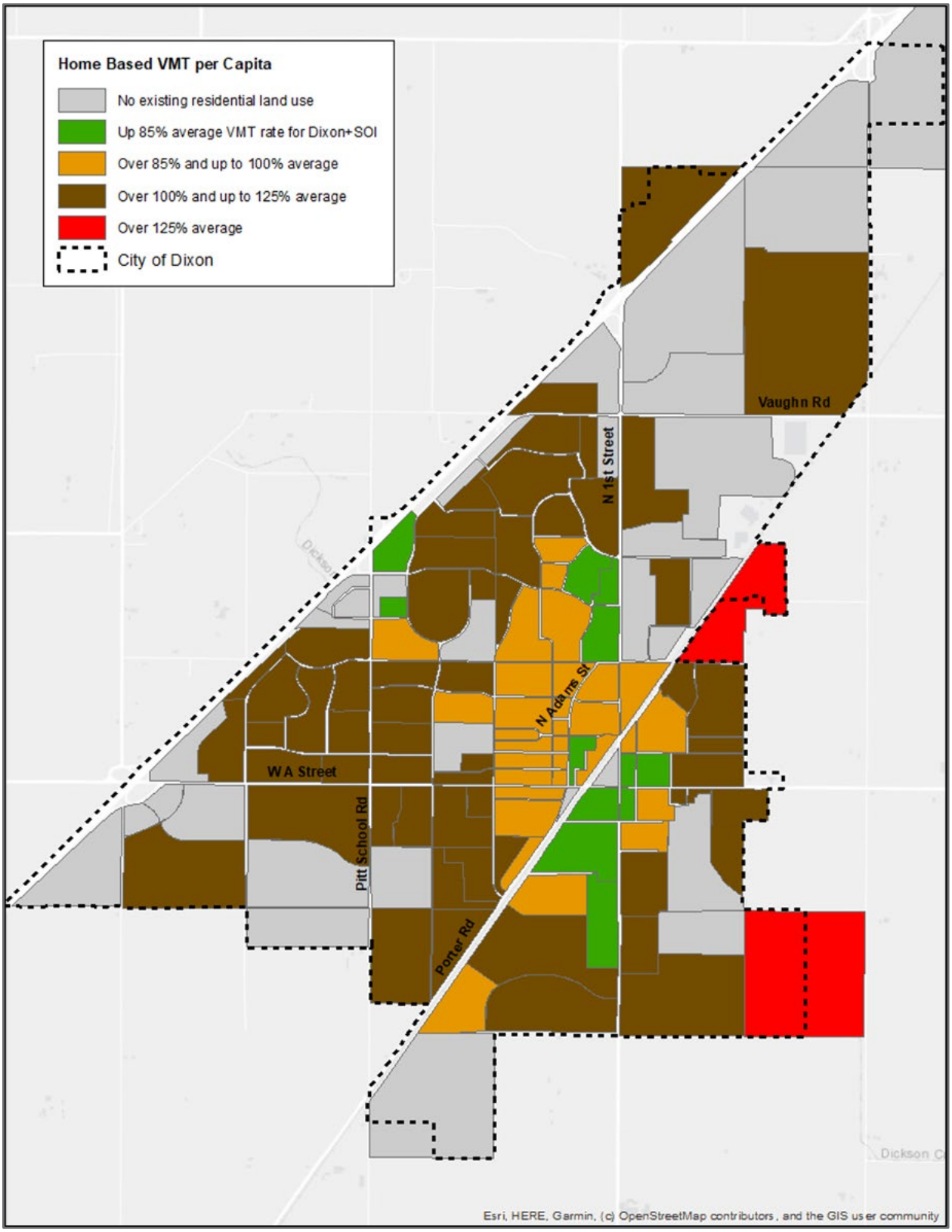

FIGURE 2. VMT PER CAPITA BY TRANSPORTATION ANALYSIS ZONE

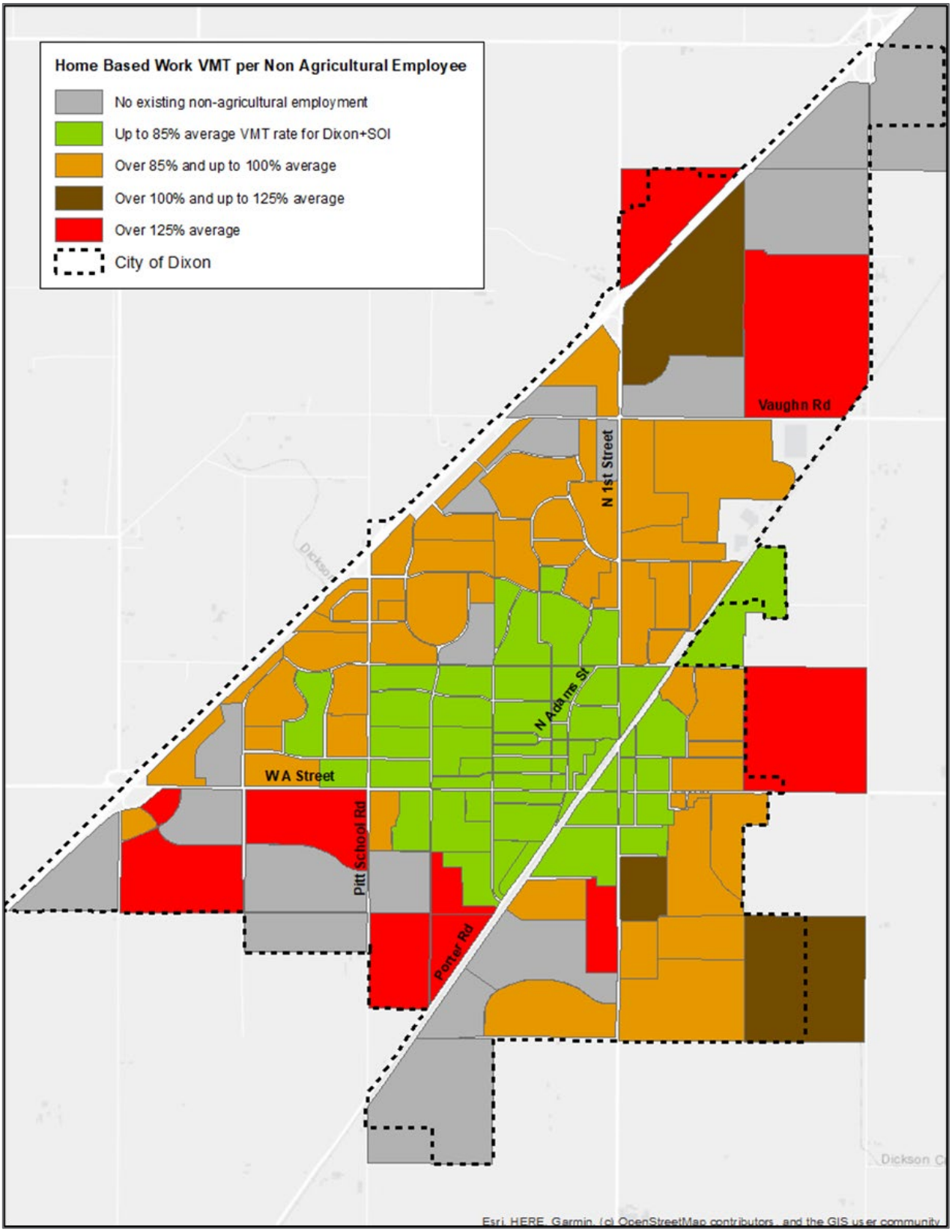

FIGURE 3. VMT PER EMPLOYEE BY TAZ BY TRANSPORTATION ANALYSIS ZONE

SECTION 3. VMT MITIGATION AND EFFECTIVENESS

The most recent report published by CAPCOA on the effectiveness of various VMT mitigation strategies was referenced to identify the most suitable VMT mitigation strategies for the City of Dixon (although this document is currently in draft form, the summarized research is likely to remain unchanged). Some mitigation strategies are applicable at the project site scale while others are only appropriate for larger planned areas or communities. VMT reduction strategies are further categorized under subsectors which include Land Use, Neighborhood Design, Trip Reduction Programs, Parking Management, Transit, Parking or Road Pricing, and Clean Vehicles and Fuels.

The following general guidelines should be followed when assessing the effectiveness of proposed VMT mitigation strategies:

1) The effectiveness of strategies from the different scales – Project Site and Neighborhood - should never be combined.

2) The effectiveness of multiple mitigation strategies of the same scale but from different subsectors can be added to estimate overall effectiveness.

3) The effectiveness of multiple measures within a subsector should be multiplied to determine a combined effectiveness level.

4) Each individual measure has a maximum allowable reduction and each subsector of VMT mitigation strategies has a combined maximum allowable reduction.

Table 4 and Table 5 summarize the documented VMT mitigation strategies at the project site and plan/community scales and their maximum effectiveness rates. Details on how to calculate VMT mitigation effectiveness for a particular project or plan may be found in the CAPCOA report.

TABLE 4: VMT MITIGATION STRATEGIES

APPLICABLE AT THE PROJECT/SITE SCALE

STRATEGY	SUBSECTOR	MAXIMUM EFFECTIVENESS (PCT. VMT REDUCTION)	IMPLEMENTATION NOTES
INCREASE RESIDENTIAL DENSITY	Land Use	30%	Most accurately quantified when applied to larger developments and/or developments where the density is similar to the surrounding neighborhood.
INCREASE JOB DENSITY	Land Use	30%	Most accurately quantified when applied to larger developments and/or developments where the density is similar to the surrounding neighborhood.
PROVIDE TRANSIT-ORIENTED DEVELOPMENT	Land Use	31%	Currently not applicable in Dixon
INTEGRATE AFFORDABLE HOUSING	Land Use	26.8%	The California Department of Housing and Community Development (2021) defines lower income as 80 percent of area median income or below, and affordable housing as costing 30 percent of gross household income or less
IMPLEMENT COMMUTE TRIP REDUCTION PROGRAM (VOLUNTARY)	Trip Reduction Programs	4%	Programs should include employer provided services, infrastructure, and incentives for alternative modes as well as information, coordination, and marketing.
COMMUTE TRIP REDUCTION PROGRAM (MANDARY IMPLEMENTATION AND MONITORING)	Trip Reduction Programs	26%	In addition to elements of the voluntary program, must include mandatory trip reduction requirements and regular monitoring and reporting.
COMMUTE TRIP REDUCTION MARKETING	Trip Reduction Programs	4%	Must include onsite or online commuter information services, Employee transportation coordinators, onsite or online transit pass sales, guaranteed ride home service.
PROVIDE RIDESHARING PROGRAM	Trip Reduction Programs	8% (4% in suburban location)	Promote ridesharing through designated parking spaces, designated passenger loading and waiting areas, and an app or website for coordinating rides.

STRATEGY	SUBSECTOR	MAXIMUM EFFECTIVENESS (PCT. VMT REDUCTION)	IMPLEMENTATION NOTES
IMPLEMENT SUBSIDIZED OR DISCOUNTED TRANSIT PROGRAM	Trip Reduction Programs	5.5%	Project should be within 1 mile of high-quality transit service, 0.5 mile of local or less frequent service, or along a shuttle route providing last mile connections to rail service.
PROVIDE END OF TRIP BICYCLE FACILITIES	Trip Reduction Programs	4.4%	End-of-trip facilities include bike parking, bike lockers, showers, and personal lockers
PROVIDE EMPLOYER SPONSORED VANPOOL	Trip Reduction Programs	20.4%	Vanpool programs are more appropriate for the building occupant or tenant (i.e., employer) to implement and monitor than the building owner or developer
PRICE WORKPLACE PARKING	Parking or Road Pricing/Management	20.0%	Price onsite parking at workplaces.
IMPLEMENT EMPLOYEE PARKING CASH OUT	Parking or Road Pricing/Management	12%	Provide cash payment in lieu of subsidized or free parking.
LIMIT RESIDENTIAL PARKING SUPPLY	Parking or Road Pricing/Management	13.7%	This measure is ineffective in locations where unrestricted street parking or other offsite parking is available nearby and has adequate capacity to accommodate project-related vehicle parking demand.
UNBUNDLE RESIDENTIAL PARKING COSTS FROM PROPERTY COST	Parking or Road Pricing/Management	15.7%	Parking costs are passed through to the vehicle owners/drivers utilizing the parking spaces for this measure to result in decreased vehicle ownership

Source: California Air Pollution Control Officers Association. Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity, December 2021

TABLE 5: VMT MITIGATION STRATEGIES

APPLICABLE AT THE PLAN/COMMUNITY SCALE

STRATEGY	SUBSECTOR	MAXIMUM EFFECTIVENESS (PCT. VMT REDUCTION)	IMPLEMENTATION NOTES
IMPROVE STREET CONNECTIVITY	Land Use	30%	Projects that increase intersection density would be building a new street network in a subdivision or retrofitting an existing street network to improve connectivity (e.g., converting cul-de-sacs or dead-end streets to grid streets).
PROVIDE PEDESTRIAN NETWORK IMPROVEMENT	Neighborhood Design	6.4%	Involves sidewalk coverage expansion as well as improving substandard sidewalks.
CONSTRUCT OR IMPROVE BIKE FACILITY	Neighborhood Design	0.8%	The bicycle lane facility must be either Class I, II, or IV. Class I bike paths are physically separated from motor vehicle traffic. Class IV bikeways are protected on-street bikeways, also called cycle tracks. Class II bike lanes are striped bicycle lanes that provide exclusive use to bicycles on a roadway.
CONSTRUCT OR IMPROVE BIKE BOULEVARD	Neighborhood Design	0.2%	Functional classification: local and collector if there is no more than a single general-purpose travel lane in each direction. ▪ Design speed: <= 25 miles per hour. ▪ Design volume <= 5,000 average daily traffic. ▪ Treatments at major intersections: both directions have traffic signals (or an effective control device that prioritizes pedestrian and bicycle access such as rapid flashing beacons, pedestrian hybrid beacons, high intensity activated crosswalks, TOUCANs), bike route signs, "sharrowed" roadway markings, and pedestrian crosswalks.

STRATEGY	SUBSECTOR	MAXIMUM EFFECTIVENESS (PCT. VMT REDUCTION)	IMPLEMENTATION NOTES
EXPAND BIKEWAY NETWORK	Neighborhood Design	0.5%	The bikeway network must consist of either Class I, II, or IV infrastructure.
IMPLEMENT CAR SHARE PROGRAM	Neighborhood Design	0.15%	Research documenting this strategy is based on a free-floating operational model.
IMPLEMENT BIKESHARE OR SCOOTER SHARE PROGRAM	Neighborhood Design	0.02%- 0.07%	Research documenting this strategy is based on docked bikeshare programs.
PROVIDE COMMUNITY BASED TRAVEL PLANNING	Trip Reduction Programs	2.3%	CBTP involves teams of trained travel advisors visiting all households within a targeted geographic area, having tailored conversations about residents' travel needs, and educating residents about the various transportation options available to them. Due to the personalized outreach method, communities are typically targeted in phases.
IMPLEMENT MARKET PRICE PUBLIC ON-STREET PARKING	Parking or Road Pricing/Management	30.0%	Applicable to areas with robust transit service and/or high-density residential development.
TRANSIT IMPROVEMENTS	Transit	0.6 – 13.8%	Increased frequency, extended coverage, reduced fares, transit supportive roadway treatments, Bus Rapid Transit

Source: California Air Pollution Control Officers Association. Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity, December 2021

In general, the strategies implemented at a project site scale are more relevant for the City of Dixon, although a few plan/community scale measures might be appropriate for larger master planned development proposals.

The mitigation strategies at the project site scale that would currently be most applicable in the City of Dixon include:

- Increase residential density
- Increase job density
- Integrate affordable housing
- Implement voluntary commute trip reduction program
- Provide end of trip bicycle facilities
- Limit residential parking supply

Those most promising mitigation strategies at the Plan/Community scale include:

- Improve Street Connectivity
- Provide Pedestrian Network Improvement
- Construct or Improve Bike Facility

MITIGATION FEE PROGRAMS

VMT mitigation banks or exchanges would provide an alternative to mitigating VMT impacts at the project site level. With a mitigation bank, developers would pay a fee in lieu of specific on-site mitigation measures. The combined fees would then be used to pay for mitigation projects across the city or region. With a mitigation exchange, developers would select from a pre-approved list of mitigation projects throughout the city or region.

Any such mitigation fee program or exchange would need to support its mitigation estimates with rigorous analysis and would be subject to the legal requirements of CEQA, including mitigation monitoring requirements, and the California Mitigation Fee Act. As such, this option would not be a quick or easy undertaking and might be most effectively implemented at a regional level.

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APPENDICES

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APPENDIX 1. METHODOLOGY MEMO

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VMT METHODOLOGY AND BASELINE CALCULATIONS

DATE: December 15, 2021

TO: Deborah Barr | City of Dixon
Raffi Boylan | City of Dixon

FROM: DKS Associates

SUBJECT: Dixon SB 743 Implementation –Baseline VMT Calculations and Recommended Methodology P#20160-007

This memorandum documents the recommended analytical tool and approach for VMT analysis of land use projects for CEQA purposes in the City of Dixon. Also described are baseline VMT calculations and methodology made using the City's travel demand model. The baseline VMT calculations will determine VMT thresholds of significance and support analysis procedures documented in the City's transportation impact analysis guidelines.

AVAILABLE ANALYTICAL TOOLS

Two travel demand models are available that could be used to measure VMT characteristics of development projects in the City of Dixon. These include the City's own travel demand model and the regional travel demand model maintained by the Solano Transportation Authority (STA) and Napa Valley Transportation Authority (NVTA).

CITY OF DIXON TRAVEL DEMAND MODEL

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The level of network and geographic detail for the Dixon area are much coarser than those of the City's model, as depicted in Figure 2. The SNABM model has been calibrated and validated for a base year of 2015.

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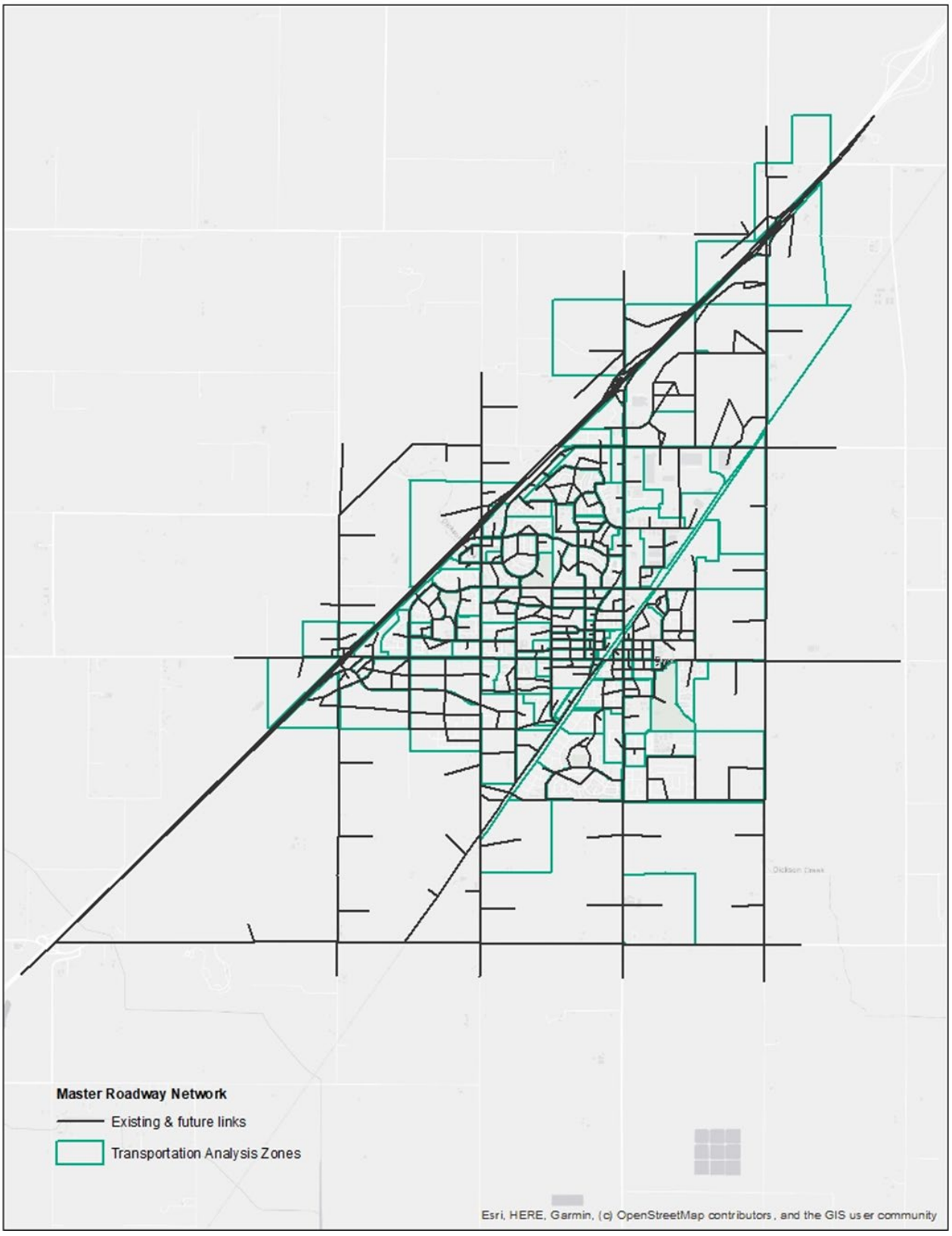

FIGURE 1. DIXON MODEL ZONES AND NETWORK

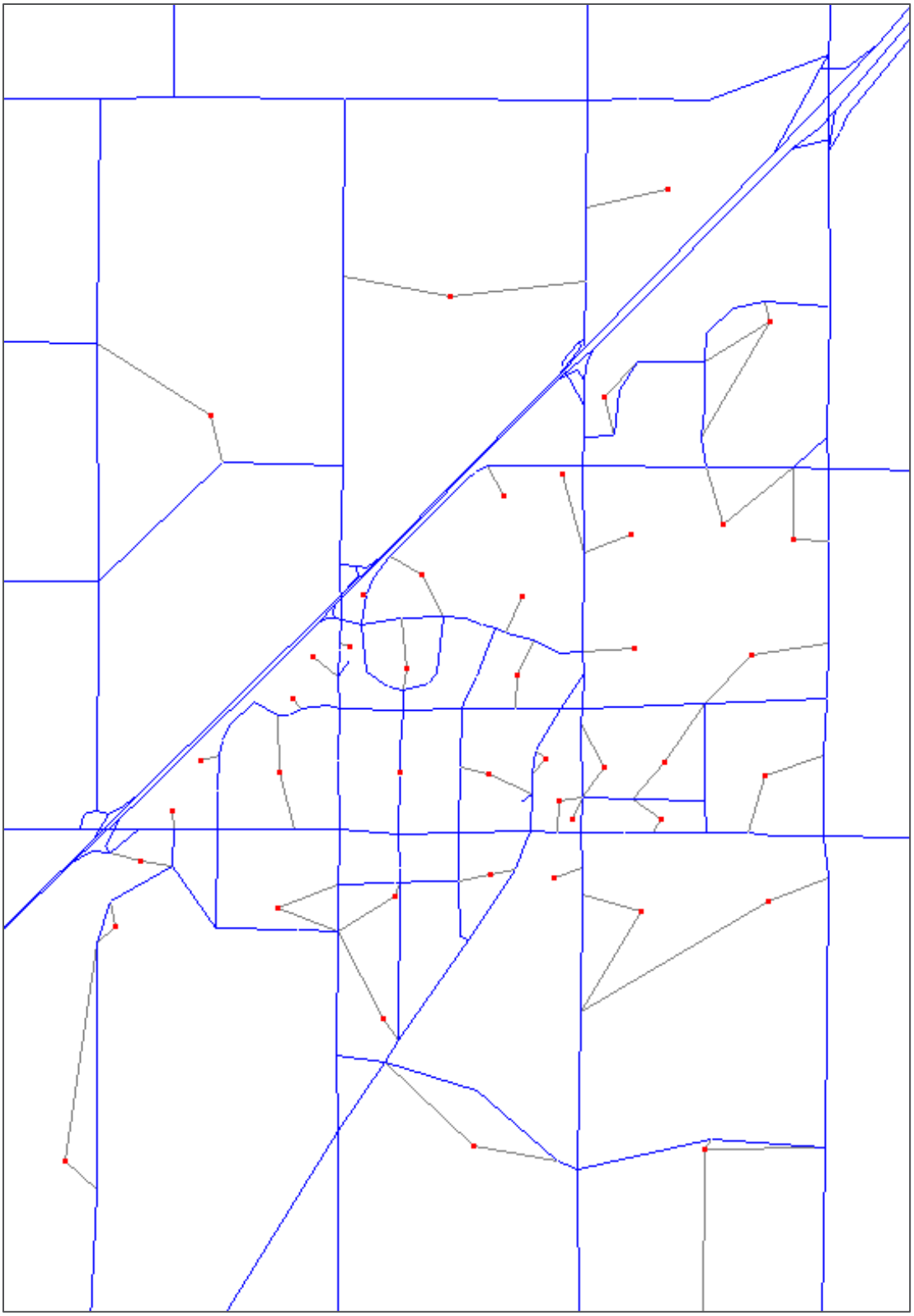

FIGURE 2. SNABM MODEL NETWORK IN DIXON VICINITY

METHODOLOGY AND RESULTS

This section documents the methods for baseline VMT calculations made for the City of Dixon using the City's travel demand model and the Solano-Napa ABM. Average VMT metrics tabulated using both models are summarized in Table 1. The selected baseline averages would be used to determine thresholds of significance.

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	DIXON MODEL[1]	SNABM[2] (CITY OF DIXON AVERAGE)	SNABM[2] (SOLANO COUNTY AVERAGE)
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Notes:

1) Average for City of Dixon and Sphere of Influence; low agricultural employment TAZs excluded from VMT per employee calculation.
2) Calculated with outputs from 2015_RT Scenario as received from STA.

SOLANO-NAPA ACTIVITY BASED MODEL

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The VMT tabulation scripts compile home-based trips made by automobile from the simulated travel activity trip lists and calculate VMT using the appropriate time-of-day travel distance skims (daily travel is segmented into five time periods). VMT by trip purpose is tabulated at the home location and employment location for each transportation analysis zone (TAZ) and output to a text file for further processing in a spreadsheet format.

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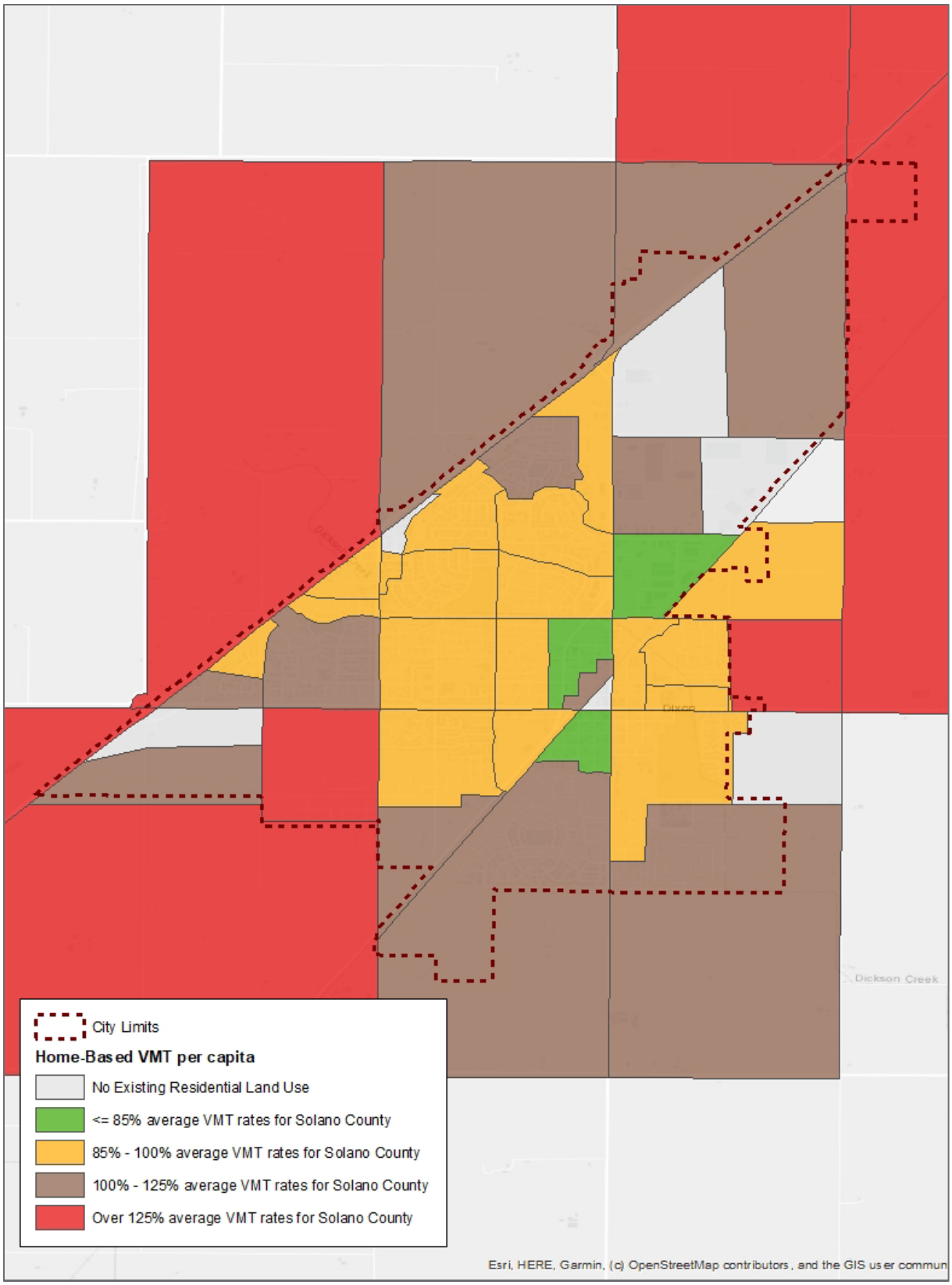

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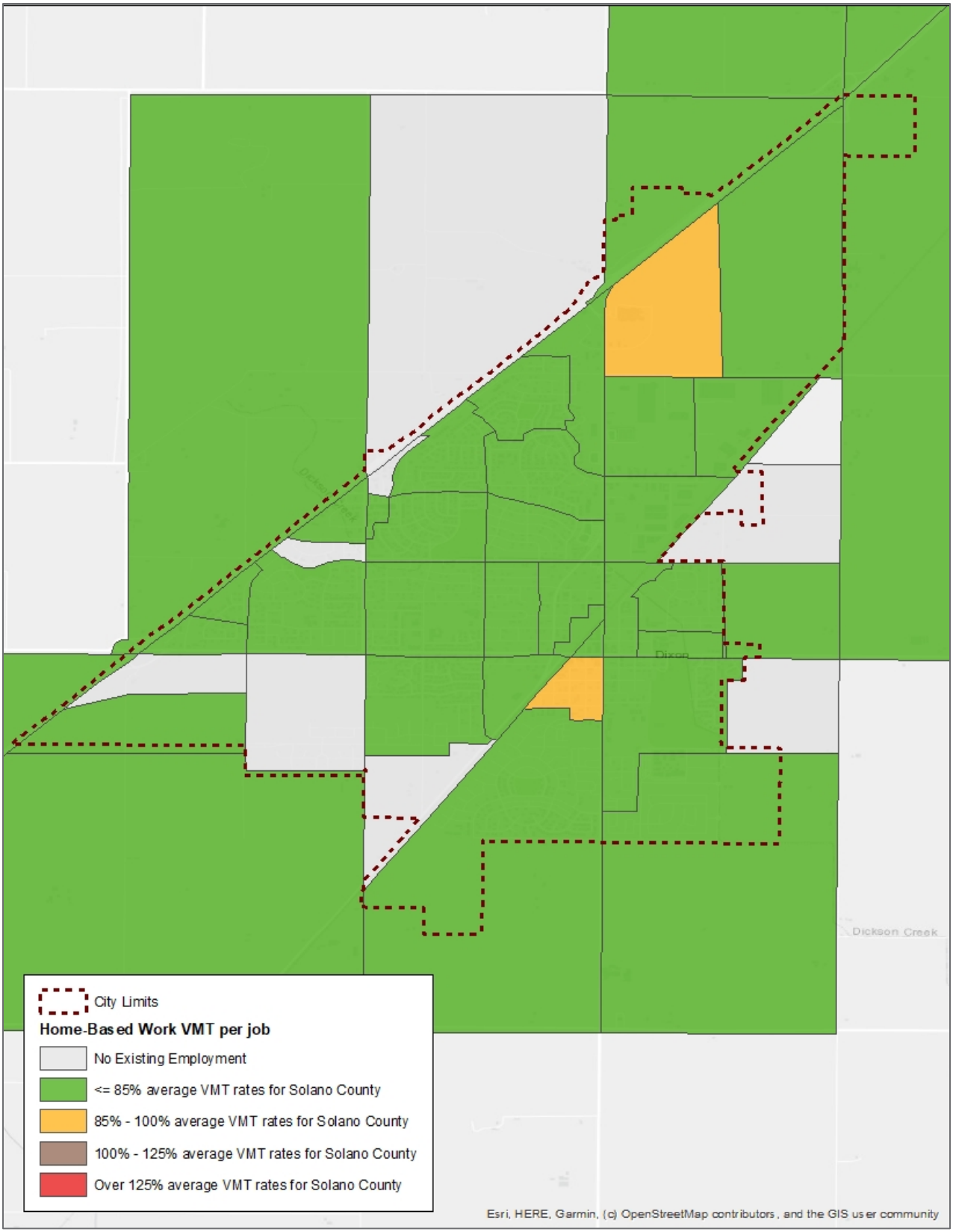

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Plan buildout deliverable (the spreadsheet can also report VMT per dwelling unit taking the denominator directly from the model inputs).

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Maps depicting the 2019 baseline VMT rates with respect to the Dixon model area average are presented as Figure 5 and Figure 6.

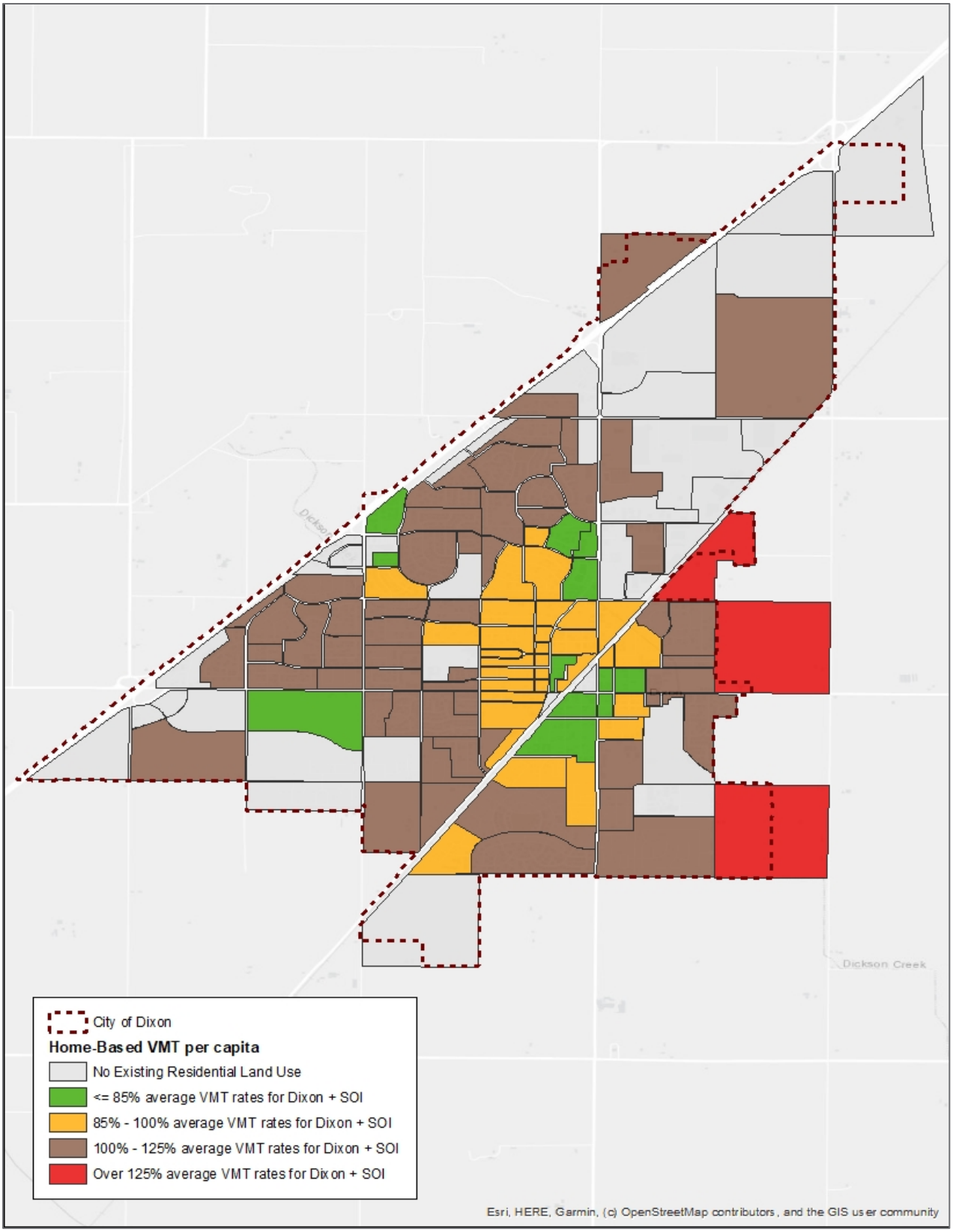
RECOMMENDATIONS

While the VMT maps prepared using the SNABM outputs might initially suggest that using this tool would be more advantageous to the City, this option is not recommended for the following reasons:

1) Dixon is located near the edge of the SNABM model's study area, which encompasses the nine-county Bay Area. As such, the City's significant commute patterns with regions external to the SNABM model such as Davis and Sacramento are not well represented. It would be possible to adjust external gateway distances to partially correct for this issue, as was done with the City's model. However, only travel by Bay Area residents is represented at a detailed level with associated information about trip purpose in the SNABM model. Travel by residents external to the model (e.g., residents outside the Bay Area commuting to Dixon) are represented only by vehicle trip tables and no information regarding trip purpose is available. The external-internal trip tables are not sensitive to internal land use assumptions.

2) OPR recommends that the same analytical tool that is used to develop thresholds of significance also be applied for individual project analyses. The SNABM is a complex, regionally scaled model and requires significant resources to run (approximately 16 hours plus additional time for VMT processing). This could pose an undue burden for smaller development projects.

3) The City of Dixon travel demand model is centered on the City and its Sphere of Influence. It has been calibrated using recent traffic counts collected on Dixon roadways and incorporates an elasticity feature that makes the amount of internal-external travel predicted by the model sensitive to land use inputs. In addition, adjustments to the model's gateway link distances account for the full trip length, as recommended by OPR. Finally, the Dixon model can be quickly applied with a reasonable level of effort to analyze individual development proposals.



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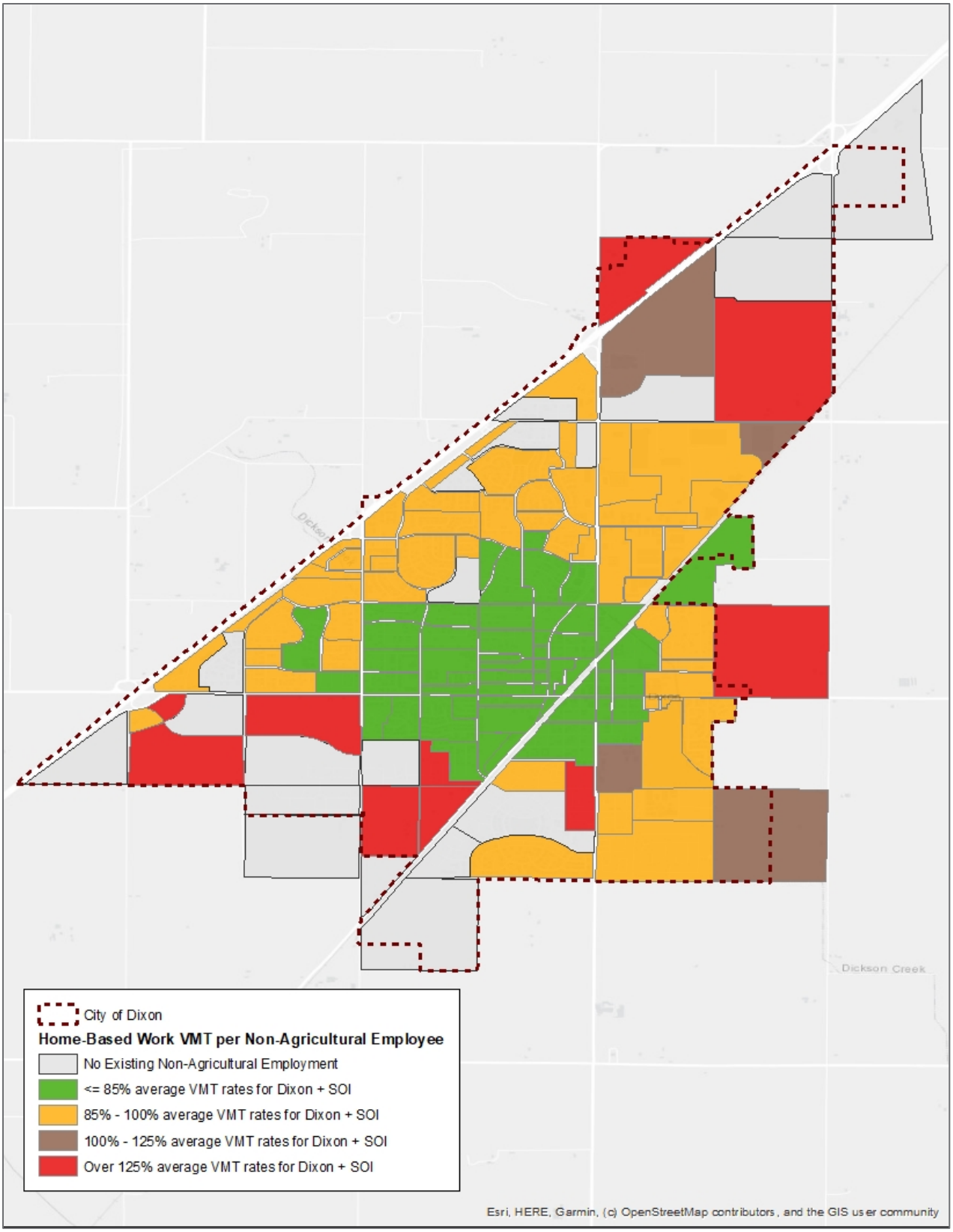

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Considering the VMT baseline calculations prepared using both available analytical tools, strengths and weaknesses of both tools, and the level of effort required to apply each of them, the use of the City of Dixon travel demand model is recommended for development of the City's baseline VMT and thresholds of significance for CEQA purpose. The recommended approach may be reconsidered when and if the Solano Transportation Authority sponsors a regional VMT mitigation study and/or development of an analytical tool that relies on the SNABM or other source.

DKS 1970 BROADWAY, SUITE 740, OAKLAND, CA 94612 • 510.763.2061 • DKSASSOCIATES.COM

VMT METHODOLOGY AND BASELINE CALCULATIONS

DATE: December 15, 2021

TO: Deborah Barr | City of Dixon
Raffi Boylan | City of Dixon

FROM: DKS Associates

SUBJECT: Dixon SB 743 Implementation –Baseline VMT Calculations and Recommended Methodology P#20160-007

This memorandum documents the recommended analytical tool and approach for VMT analysis of land use projects for CEQA purposes in the City of Dixon. Also described are baseline VMT calculations and methodology made using the City's travel demand model. The baseline VMT calculations will determine VMT thresholds of significance and support analysis procedures documented in the City's transportation impact analysis guidelines.

AVAILABLE ANALYTICAL TOOLS

Two travel demand models are available that could be used to measure VMT characteristics of development projects in the City of Dixon. These include the City's own travel demand model and the regional travel demand model maintained by the Solano Transportation Authority (STA) and Napa Valley Transportation Authority (NVTA).

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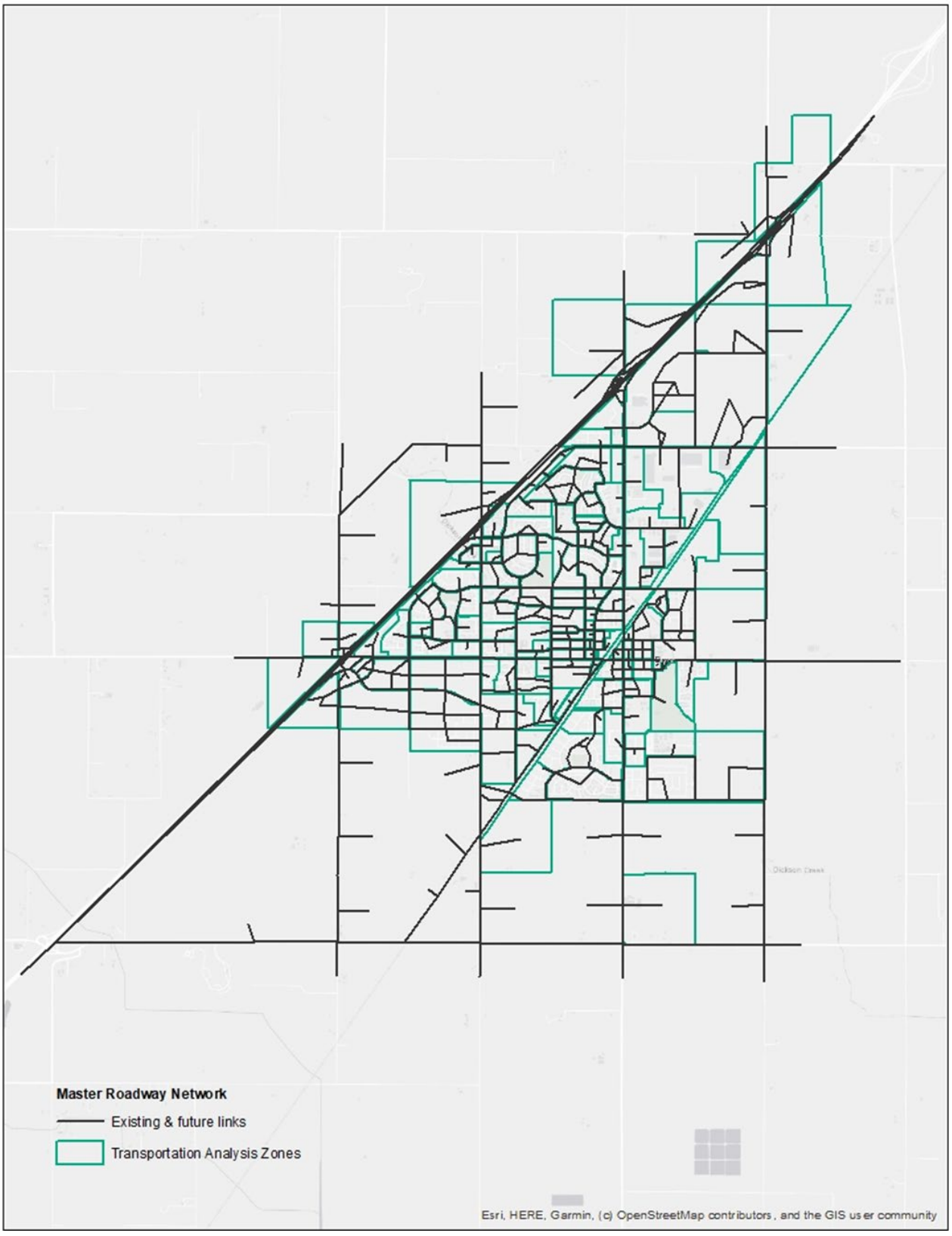

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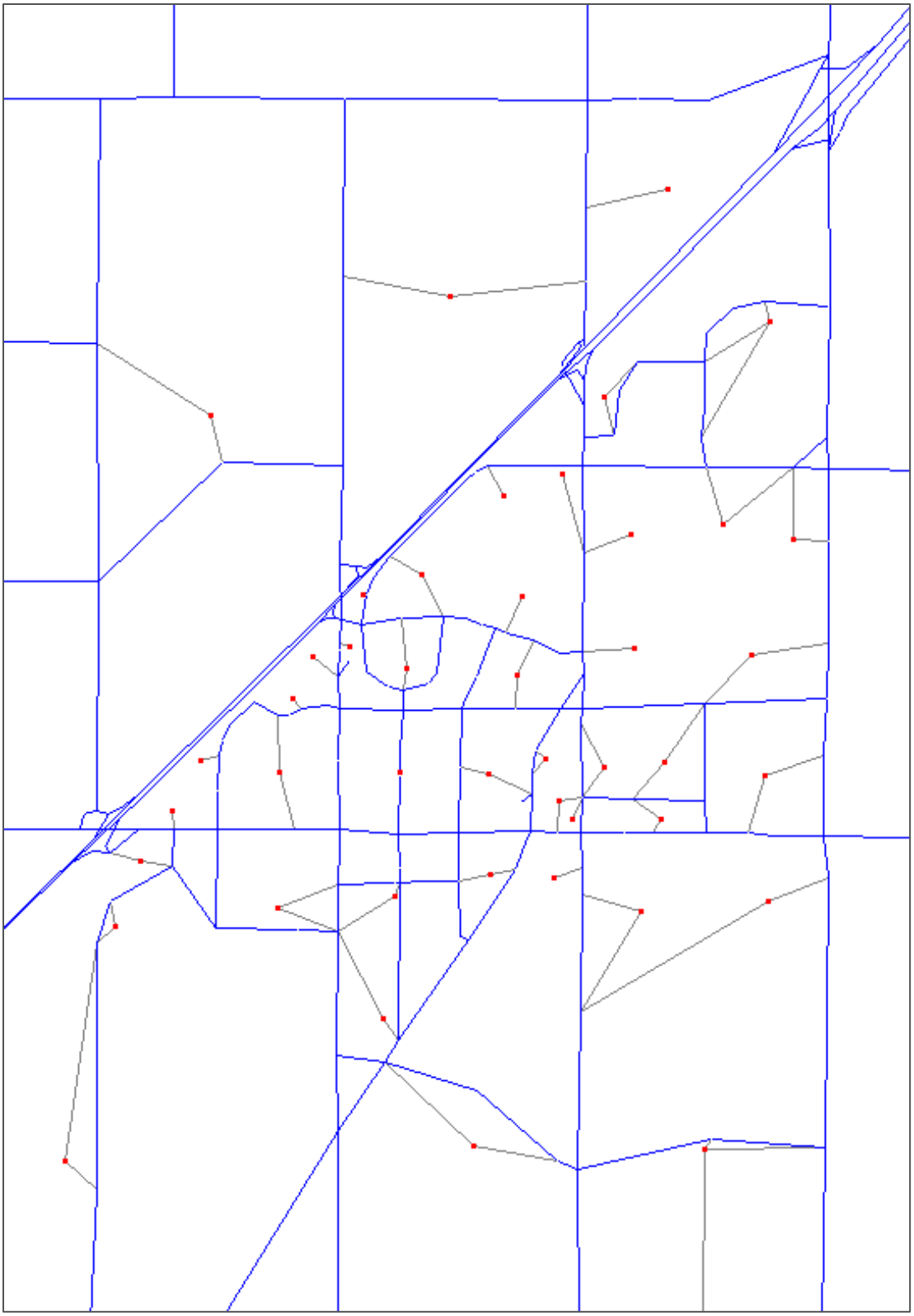

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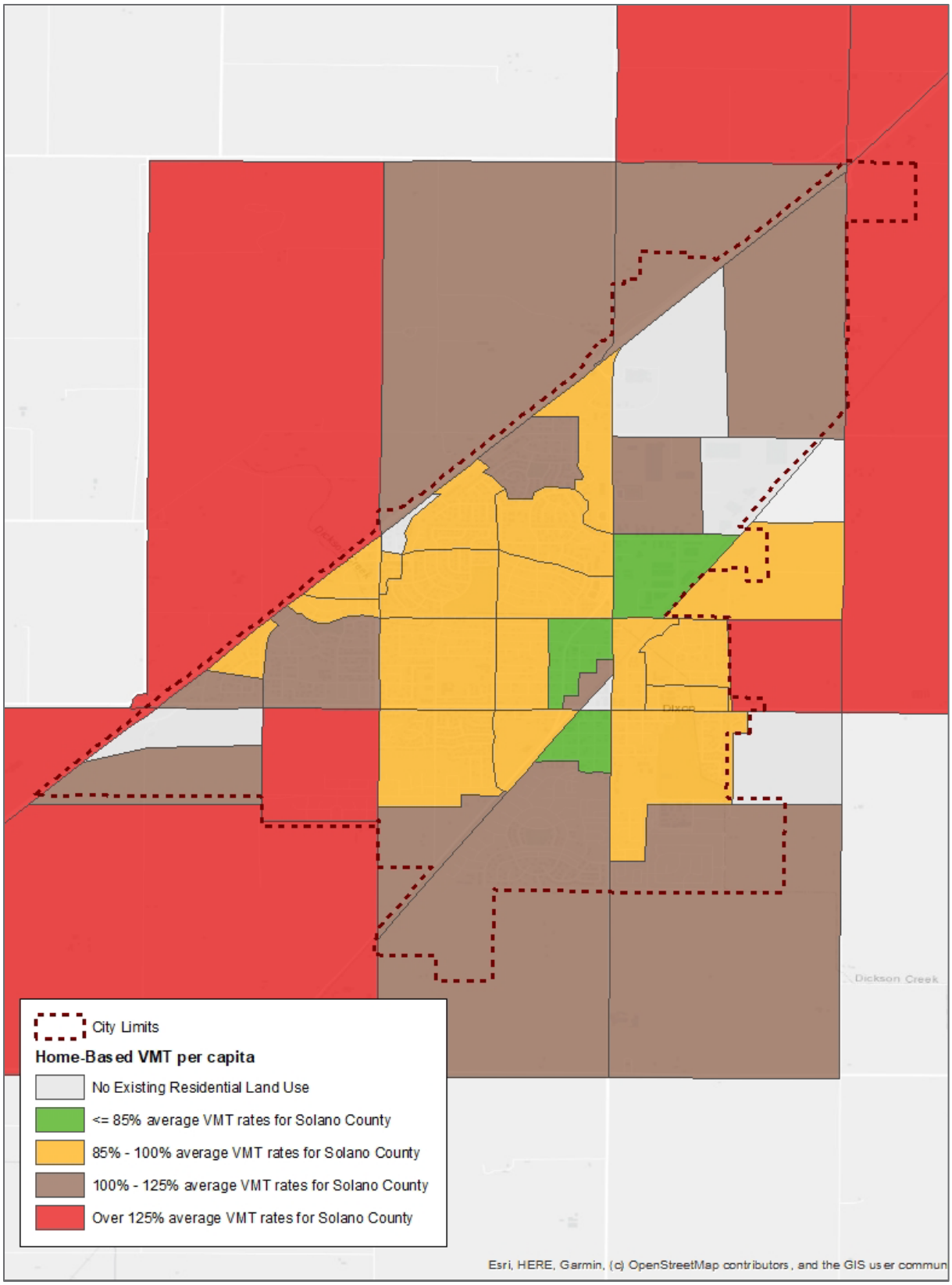

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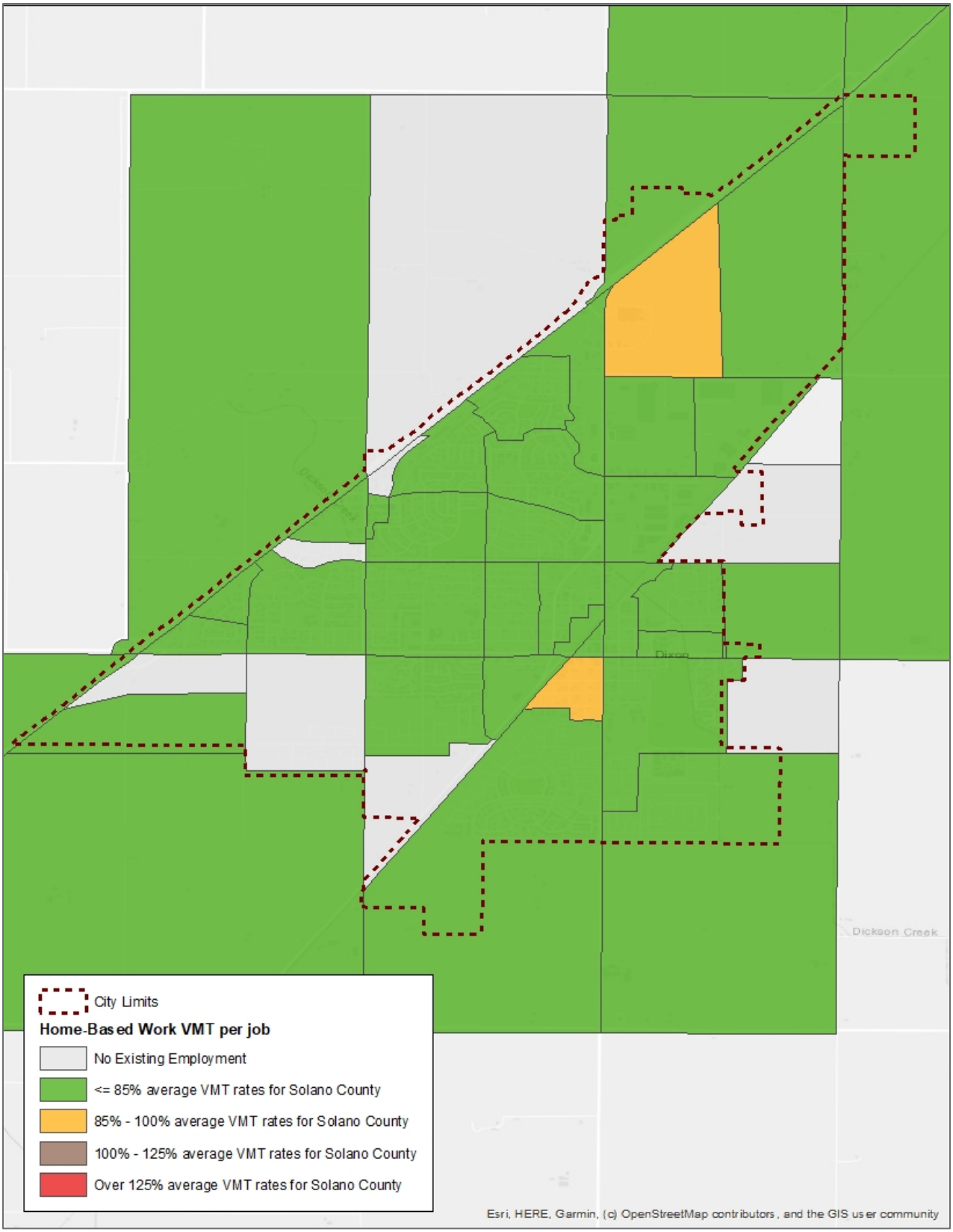

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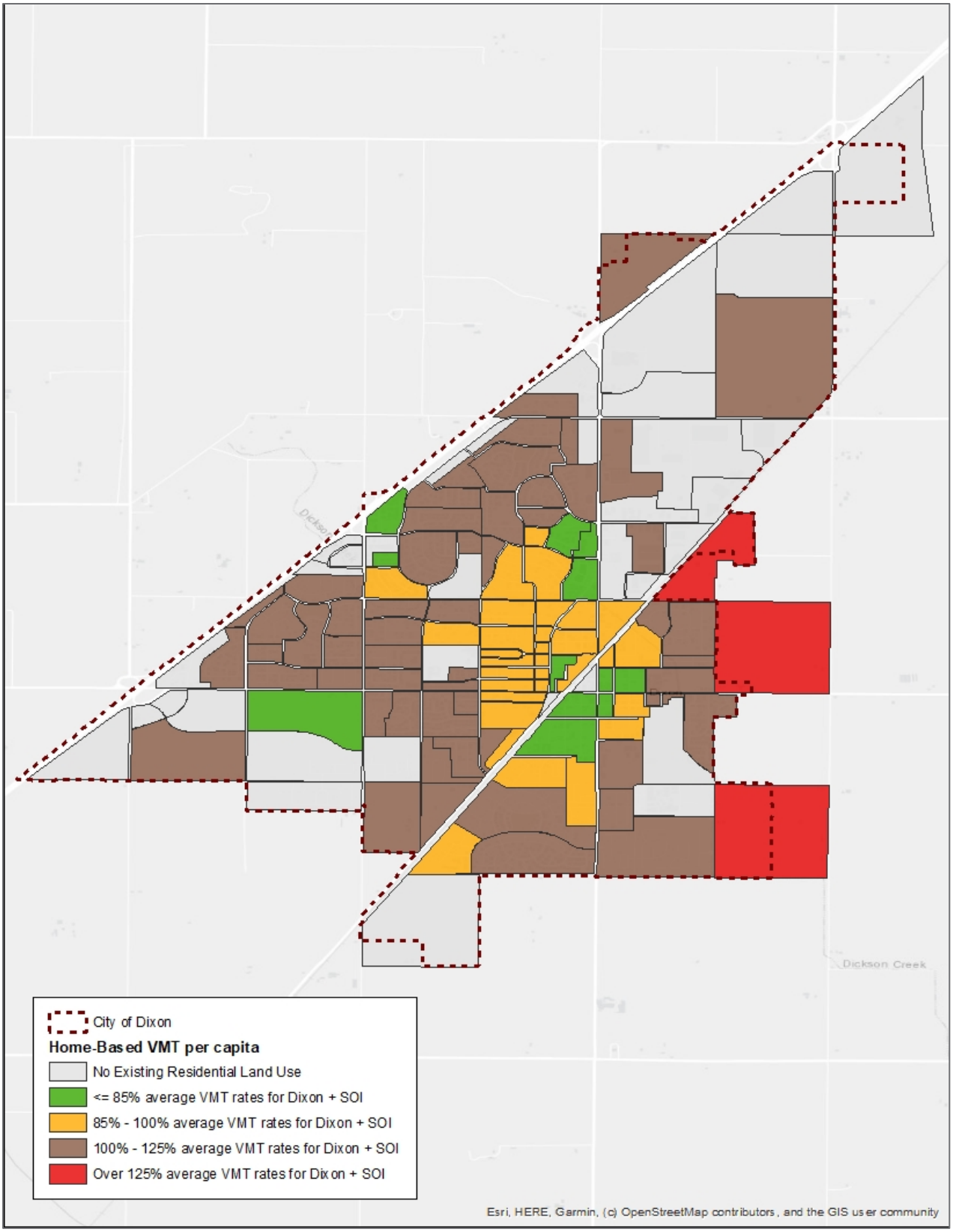

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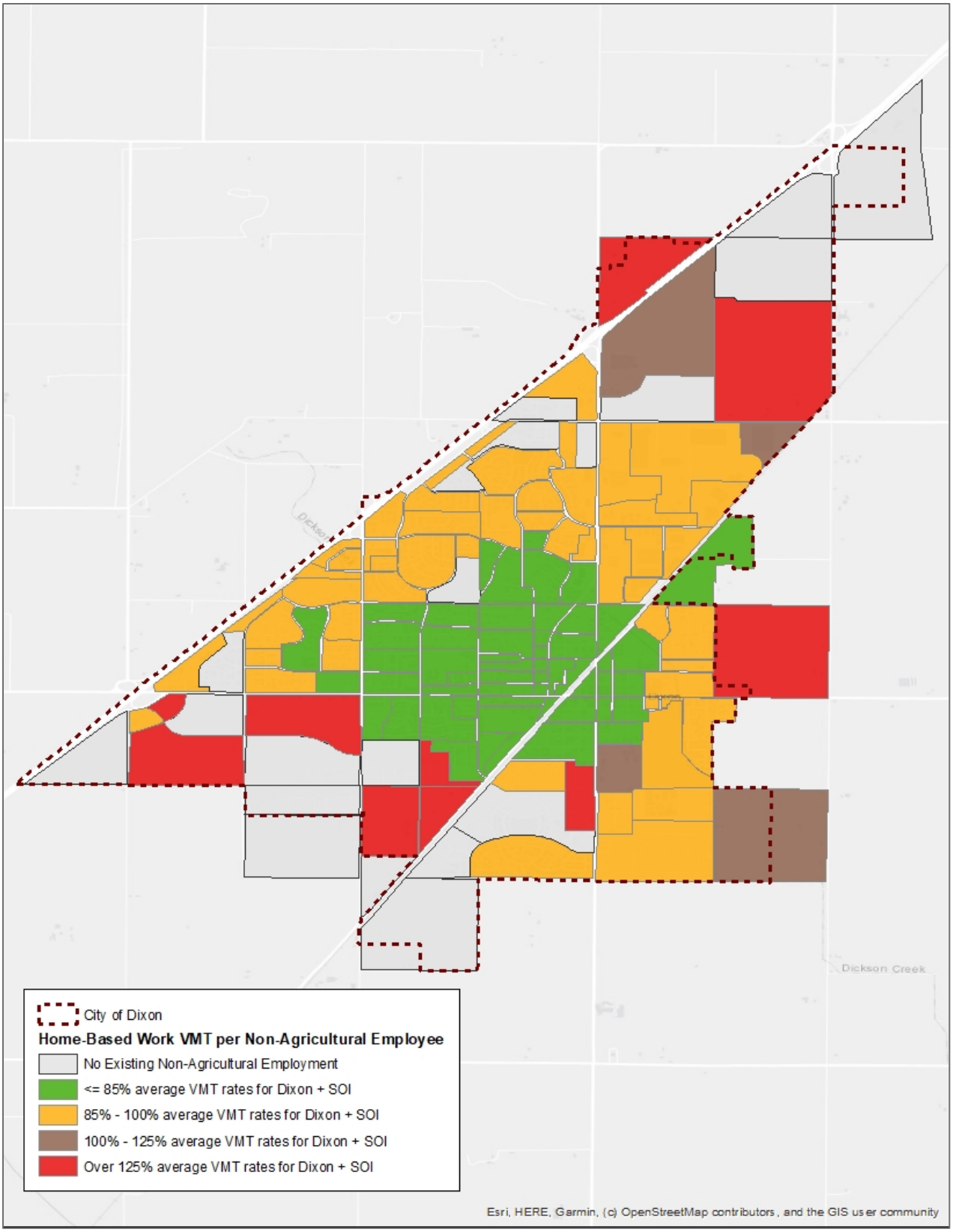

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APPENDIX 2. BASELINE VMT BY TAZ

Zone	SFDU	MFDU	Employment	nonAG_ Employment	Population 2018	HB_VMT_capita	HBW_VMT_job*
30	-	-	4	-	-	-	-
31	-	-	38	15	-	-	35.41
32	1	-	9	0	3	26.46	2,315.67
33	-	-	-	-	-	-	-
34	-	-	109	15	-	-	82.93
35	-	-	-	-	-	-	-
36	-	-	-	-	-	-	-
37	-	-	-	-	-	-	-
38	-	-	-	-	-	-	-
39	-	-	4	-	-	-	-
40	-	-	42	-	-	-	-
41	-	-	-	-	-	-	-
42	-	-	-	-	-	-	-
43	-	-	-	-	-	-	-
44	1	-	11	0	3	26.22	2,514.10
45	2	-	9	4	3	52.30	30.92
46	-	-	3	-	-	-	-
47	-	-	17	-	-	-	-
48	-	-	11	4	-	-	31.02
49	-	-	-	-	-	-	-
50	-	-	-	-	-	-	-
51	-	-	-	-	-	-	-
52	-	-	-	-	-	-	-
53	-	-	-	-	-	-	-
54	-	-	-	-	-	-	-
55	-	-	-	-	-	-	-
56	-	-	17	-	-	-	-
57	-	-	35	-	-	-	-
58	1	-	14	3	3	25.82	55.80
59	-	-	12	-	-	-	-
60	4	-	9	0	12	24.58	495.57
61	-	-	-	-	-	-	-
62	-	-	-	-	-	-	-
63	2	-	3	0	6	24.15	364.21
64	5	-	6	0	15	23.04	257.71
65	46	-	-	-	140	25.01	-
66	-	-	-	-	-	-	-
67	-	-	-	-	-	-	-
68	-	-	-	-	-	-	-
69	-	-	-	-	-	-	-
70	200	43	5	5	739	24.92	15.30
71	-	-	-	-	-	-	-
72	-	-	164	164	-	-	16.20
73	-	-	-	-	-	-	-
74	-	-	-	-	-	-	-
75	4	-	112	92	10	35.09	19.75
76	-	-	48	4	-	-	130.33
77	-	-	-	-	-	-	-
78	2	-	43	2	3	57.83	230.92
79	1	-	22	0	3	28.52	5,596.78

Zone	SFDU	MFDU	Employment	nonAG_ Employment	Population 2018	HB_VMT_capita	HBW_VMT_job*
80	-	-	45	5	-	-	103.67
81	3	-	0	0	8	30.64	13.32
82	-	-	18	-	-	-	-
83	-	-	220	220	-	-	18.04
84	-	-	-	-	-	-	-
85	2	90	-	-	280	19.30	-
86	-	-	-	-	-	-	-
87	-	-	-	-	-	-	-
88	-	-	-	-	-	-	-
89	-	-	-	-	-	-	-
90	-	-	-	-	-	-	-
91	-	-	-	-	-	-	-
92	-	-	-	-	-	-	-
93	-	-	-	-	-	-	-
94	50	90	14	14	426	19.40	14.29
95	-	-	673	673	-	-	16.09
96	-	-	103	103	-	-	15.18
97	74	-	-	-	225	22.91	-
98	-	-	111	111	-	-	15.04
99	-	-	102	102	-	-	14.21
100	-	-	18	-	-	-	-
101	-	-	31	-	-	-	-
102	1	-	55	0	3	25.91	13,726.39
103	-	-	330	300	-	-	17.66
104	-	-	14	-	-	-	-
105	-	-	95	95	-	-	15.75
106	-	-	90	90	-	-	16.71
107	-	-	159	159	-	-	16.03
108	-	-	224	224	-	-	15.33
109	-	-	-	-	-	-	-
110	38	-	111	111	117	22.31	15.15
111	105	-	-	-	323	22.67	-
112	43	-	-	-	132	23.06	-
113	-	170	67	67	523	17.28	14.82
114	55	-	20	20	169	23.03	15.00
115	95	-	8	8	292	23.00	14.42
116	69	-	28	28	212	22.50	14.46
117	61	-	4	4	188	22.12	14.63
118	46	-	4	4	142	21.82	14.40
119	31	-	1	1	95	21.66	14.08
120	60	98	7	7	485	18.01	14.30
121	-	11	113	113	33	16.43	14.20
122	1	-	58	58	3	24.17	15.62
123	-	-	79	79	-	-	15.57
124	-	-	49	49	-	-	15.33
125	13	85	107	107	302	16.27	14.09
126	137	7	9	9	442	21.20	13.91
127	128	-	9	9	394	21.68	13.67
128	46	-	2	2	142	21.91	13.84
129	30	-	1	1	92	23.17	14.38

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130	-	-	-	-	-	-	-
131	182	-	64	64	560	23.11	14.44
132	-	-	63	63	-	-	14.62
133	-	-	34	34	-	-	14.85
134	-	-	26	26	-	-	14.84
135	-	-	36	36	-	-	14.63
136	118	94	26	26	652	20.46	14.26
137	154	-	9	9	474	24.04	14.50
138	24	-	1	1	74	24.20	14.51
139	155	-	9	9	477	23.89	14.35
140	48	-	24	24	148	23.76	14.16
141	74	-	3	3	228	24.23	14.70
142	80	-	4	4	246	22.85	14.13
143	82	-	5	5	252	22.21	13.71
144	101	-	6	6	311	21.29	13.57
145	49	-	5	5	151	20.92	13.68
146	4	-	32	32	12	20.84	13.90
147	1	-	41	41	3	20.49	13.93
148	50	-	4	4	154	23.05	14.44
149	153	-	10	10	471	23.78	14.56
150	75	70	42	42	447	18.97	13.92
151	1	-	2	2	3	20.66	13.46
152	41	-	2	2	126	23.14	14.55
153	5	-	47	47	15	22.68	14.29
154	28	33	4	4	188	18.35	13.82
155	4	5	87	87	28	17.51	13.47
156	-	-	134	134	-	-	13.58
157	2	-	15	15	6	21.34	13.69
158	20	23	7	7	133	17.79	13.54
159	13	3	89	89	49	19.72	13.55
160	1	-	64	64	3	22.24	15.40
161	12	-	8	8	37	20.84	13.60
162	10	-	30	30	31	20.83	13.57
163	12	10	1	1	66	18.78	13.53
164	11	3	1	1	44	19.07	13.77
165	5	-	6	6	15	20.76	13.38
166	34	-	2	2	105	21.02	13.44
167	38	6	2	2	137	20.20	13.53
168	40	-	4	4	123	21.10	13.45
169	26	-	2	2	80	21.21	13.51
170	92	-	7	7	283	21.15	13.52
171	94	-	5	5	289	21.74	13.44
172	-	-	52	52	-	-	13.63
173	18	-	1	1	55	22.01	13.70
174	32	-	2	2	99	21.95	13.65
175	104	-	7	7	320	23.06	14.12
176	72	-	8	8	222	23.06	13.89
177	45	-	82	82	139	23.32	14.03
178	80	-	6	6	246	23.91	14.18
179	62	-	4	4	191	23.59	14.12

Zone	SFDU	MFDU	Employment	nonAG_ Employment	Population 2018	HB_VMT_capita	HBW_VMT_job*
180	104	-	9	9	320	23.99	14.28
181	40	-	3	3	123	24.15	14.43
182	109	-	-	-	336	25.32	-
183	-	-	135	135	-	-	15.19
184	77	-	4	4	237	23.54	14.19
185	84	-	7	7	259	22.94	13.91
186	90	-	5	5	277	22.85	13.86
187	31	-	2	2	95	21.96	13.59
188	91	-	4	4	280	22.89	14.06
189	38	10	4	4	148	19.98	13.45
190	26	-	18	18	80	21.67	13.82
191	12	-	13	13	37	22.74	14.14
192	2	-	0	0	6	21.56	13.13
193	-	-	3	3	-	-	13.44
194	10	29	177	177	120	16.80	13.44
195	75	231	104	104	941	17.53	13.81
196	-	-	60	60	-	-	16.17
197	149	-	9	9	459	24.76	14.87
198	-	7	5	5	20	18.55	22.95
199	110	-	5	5	339	23.60	14.43
200	8	-	11	11	25	22.76	20.25
201	44	40	14	14	257	19.01	13.80
202	14	13	14	14	84	18.00	13.51
203	41	10	8	8	156	20.51	13.72
204	16	-	1	1	49	22.09	14.26
205	4	-	110	110	12	22.68	14.21
206	8	72	4	4	247	17.42	14.48
207	-	-	6	6	-	-	15.23
208	1	-	11	0	3	26.80	2,693.12
209	-	-	15	-	-	-	-
210	263	-	20	20	810	25.06	14.93
211	-	-	86	86	-	-	16.05
212	43	-	2	2	132	23.02	15.35
213	142	-	9	9	437	22.15	14.71
221	1	-	16	3	3	29.33	73.67
Dixon Model Area	5,242	1,253	5,743	5,057	19,956	21.83	16.68
Notes: TAZs 1-30 are external stations					33		
** Non agricultural job*							