Western Riverside Council of Governments
Public Works Committee

AGENDA

Thursday, June 8, 2023
2:00 PM

Western Riverside Council of Governments
3390 University Avenue, Suite 200
Riverside, CA 92501

Remote Meeting Locations:

March Joint Powers Authority
14205 Meridian Parkway, Suite 140
Riverside, CA 92518

County of Riverside Administrative Center
4080 Lemon Street, 8th Floor
Riverside, CA 92501

City of Calimesa
908 Park Avenue
Calimesa, CA 92320

Committee members are asked to attend this meeting in person unless remote accommodations have previously been requested and noted on the agenda. The below Zoom link is provided for the convenience of members of the public, presenters, and support staff.

Public Zoom Link

Meeting ID: 838 2403 7039
Passcode: 686141
Dial in: (669) 900 9128 U.S.

In compliance with the Americans with Disabilities Act and Government Code Section 54954.2, if special assistance is needed to participate in the Public Works Committee meeting, please contact WRCOG at (951) 405-6706. Notification of at least 48 hours prior to meeting time will assist staff in assuring that reasonable arrangements can be made to provide accessibility at the meeting. In compliance with Government Code Section 54957.5, agenda materials distributed within 72 hours prior to the meeting which are public records relating to an open session agenda item will be available for inspection by members of the public prior to the meeting at 3390 University Avenue, Suite 200, Riverside, CA, 92501.

In addition to commenting at the Committee meeting, members of the public may also submit written comments before or during the meeting, prior to the close of public comment to lfelix@wrcog.us.

Any member of the public requiring a reasonable accommodation to participate in this meeting in light of this announcement shall contact Lucy Felix 72 hours prior to the meeting at (951) 405-6706 or lfelix@wrcog.us. Later requests will be accommodated to the extent feasible.

The Committee may take any action on any item listed on the agenda, regardless of the Requested Action.

1. CALL TO ORDER (Stuart McKibben, Chair)

2. PLEDGE OF ALLEGIANCE

3. ROLL CALL

4. PUBLIC COMMENTS

At this time members of the public can address the Committee regarding any items within the subject matter jurisdiction of the Committee that are not separately listed on this agenda. Members of the public will have an opportunity to speak on agendized items at the time the item is called for discussion. No action may be taken on items not listed on the agenda unless authorized by law. Whenever possible, lengthy testimony should be presented to the Committee in writing and only pertinent points presented orally.

5. CONSENT CALENDAR

All items listed under the Consent Calendar are considered to be routine and may be enacted by one motion. Prior to the motion to consider any action by the Committee, any public comments on any of the Consent Items will be heard. There will be no separate action unless members of the Committee request specific items be removed from the Consent Calendar.

A. Summary Minutes from the April 13, 2023, Public Works Committee Meeting

Requested Action(s):
1. Approve the Summary Minutes from the April 13, 2023, Public Works Committee meeting.

6. REPORTS / DISCUSSION

Members of the public will have an opportunity to speak on agendized items at the time the item is called for discussion.

A. Streetlight Program, Broadband, and Energy Resilience Activities Update

Requested Action(s):
1. Receive and file.

B. TUMF Nexus Study - Review of Jurisdictional Requests to Add Projects

Requested Action(s): 1. Receive and file.

C. AB 602 and Residential Trip Generation Studies Activities Update

Requested Action(s): 1. Receive and file.

7. REPORT FROM THE DEPUTY EXECUTIVE DIRECTOR
Chris Gray

8. ITEMS FOR FUTURE AGENDAS
Members are invited to suggest additional items to be brought forward for discussion at future Committee meetings.

9. GENERAL ANNOUNCEMENTS
Members are invited to announce items / activities which may be of general interest to the Committee.

10. NEXT MEETING
The next Public Works Committee meeting is scheduled for Thursday, August 10, 2023, at 2:00 p.m., in WRCOG's office at 3390 University Avenue, Suite 200, Riverside.

11. ADJOURNMENT

Public Works Committee

Minutes

1. CALL TO ORDER

The meeting of the WRCOG Public Works Committee was called to order by Chair Stuart McKibben at 2:00 p.m. on April 13, 2023.

2. PLEDGE OF ALLEGIANCE

Chair McKibben led members and guests in the Pledge of Allegiance.

3. ROLL CALL

- City of Beaumont - Jeff Hart*
- City of Calimesa - Michael Thornton
- City of Corona - Rosalva Ureno*
- City of Hemet - Noah Rau
- City of Jurupa Valley - Octavio Duran*
- City of Lake Elsinore - Yu Tagai
- City of Menifee - Nick Fidler
- City of Moreno Valley - Melissa Walker
- City of Murrieta - Bob Moehling
- City of Norco - Sam Nelson
- City of Riverside - Gil Hernandez
- City of San Jacinto - Stuart McKibbin (Chair)
- City of Temecula - Patrick Thomas*
- County of Riverside - Mark Lancaster*
- March Joint Powers Authority - Lauren Sotelo
- Riverside County Transportation Commission - Jenny Chan
- Riverside Transit Agency (RTA) - Mauricio Alvarez

*Arrived after Roll Call

4. PUBLIC COMMENTS

There were no public comments.

5. CONSENT CALENDAR – (Murrieta / City of Riverside) 15 yes; 0 no; 0 abstention. Items 5.A - 5.C were approved.

A. Summary Minutes from the February 9, 2023, Public Works Committee Meeting

Action:

1. Approved the Summary Minutes from the February 9, 2023, Public Works Committee meeting.

B. Western Riverside County Clean Cities Coalition Activities Update

Action:
1. Received and filed.

C. 2022 Fee Comparison Analysis Update - Final Report

Action:
1. Received and filed.

6. REPORTS / DISCUSSION

A. TUMF Nexus Study Activities Update

Darren Henderson from Freeway Operations and Advanced Traffic Management reported that the TUMF Nexus Study is currently being updated, which uses data from SCAG's Regional Transportation Plan (RTP). TUMF Nexus Study Consultant, GHD, has completed the initial modeling work which included an update of the RIVCOM model to reflect the roadway network that was in place at the end of 2021. Results of the model runs will be used to screen network requests received from local jurisdictions to establish nexus for project inclusion in the Program.

Unit costs for highway projects were previously updated based on the most recent Caltrans bid prices and local agency bid prices; some of those costs have almost doubled. GHD has also verified that the changes made to RIVCOM do not impact the overall performance of the model through a review of the model calibration and validation criteria. GHD will use the updated list of TUMF network requests and then verify that each of the requested projects meets applicable criteria.

Committee member Mark Lancaster asked how SB9, adding units to an existing property, is factored into the model.

Mr. Henderson replied that it was not necessarily factored into the model, but SB9 and other bills that have been passed will be addressed along the process, and will make recommendations on how to satisfy those requirements.

Chris Gray, WRCOG Deputy Executive Director, stated that SB9 allows by-right subdivision. Staff believe that SB9 does not fundamentally affect the forecasts. SCAG conducts household level forecasts based on population estimates adopted by the Department of Finance, which forecasts the County's growth in the next 20 years regardless of the dwelling type. Also, SB9 does not apply to large areas of the County because the census department has changed the definition of what is considered "urban". Finally, the Agency's development patterns are not conducive to SB9 development, as developers do not care for subdividing lots since 90% of residential permits are pulled by large publicly-traded companies such as KB Homes. As of now, SB9 does not affect the demographic forecasts, but things might change, which is why Nexus studies are conducted.

A question was asked if the fees are going to double, if all else is equal.

Mr. Henderson replied that GHD is going to be very stringent on applying the selection criteria for projects that are included in the Program, as well as other things to do as part of the update to help offset the effect of the unit costs.

A question was asked when the fees will be determined, and if there are significant increases, can WRCOG consider phasing those increases over a few years.

Mr. Gray stated that in the past, there has almost always been phasing when implementing new increases. The WRCOG Executive Committee will take two actions: approve the Nexus study, and implement the fees. The Executive Committee can reject the Nexus, or only adopt a certain percentage of the fees. Outreach will be done with Committee members, City Managers, County Supervisor boards, or whomever, to make sure everyone understands the process.

Mr. Henderson clarified that if the Executive Committee was to reduce the fee identified in the Nexus, it would affect how the fee is implemented, and require member agencies to demonstrate how it will cover the lost revenue. It is expected that the fee will go up substantially since the unit costs have doubled, but GHD will work to keep the increase as modest as possible. The final Nexus is expected to be completed by fall of 2023.

Mr. Gray added that the fees will reflect the projects included in the Nexus study, and if the Executive Committee wants to reduce those fees, it will affect the amount of money made available to member agencies for their projects, and may require agencies to match or contribute more.

Mr. Henderson stated that the TUMF Program operates on a full-basis fee, which calculates the total amount that needs to be generated by the Program to mitigate the impact created. The Committee may choose to adopt a program that will only mitigate a certain percentage of the costs, but only that percentage will be available to agencies for their projects.

A question was asked if Intelligent Transportation Systems (ITS) projects are still being considered to be included.

Mr. Gray confirmed that staff believes ITS should be a part of the Program. Some member agencies have completed most of the projects in the TUMF network. Agencies may receive an incentive for improving traffic flow, such as by installing adaptive traffic lights.

Mr. Gray stated he will look into the Business Round Table Initiative to see if it will affect the TUMF Fee, with a presentation on this subject on a future agenda. Staff is always on the lookout for state-level efforts to limit impact fees.

Action:

1. Received and filed.

B. WRCOG Member Agency Experience as it Relates to State & Federal Agencies in the Infrastructure, Design, and Construction Process

Chris Gray, WRCOG Deputy Executive Director, asked Committee members for input regarding their experiences when working with State and Federal agencies.

Committee member Mark Lancaster shared that he received a letter from the State regarding the Campbell Ranch interchange, and there is an extensive list of requirements to modify an interchange.

Committee member Mike Thornton stated that the City of Calimesa proposed to upgrade an interchange, but has faced many challenges based on the overwhelming inefficiencies in the process, specifically from Caltrans. The City of Calimesa is working with the County of Riverside to try to get this project built. It has had unique opportunities to obtain funding, but it has been over five years and the project has been unable to get to a point where it is ready for funding. The City of Calimesa meets with Caltrans every month; yesterday was meeting number 49. One of the frustrations has been that Caltrans changes policies on a regular basis, and if a project is not approved on a certain step, it has to go back to meet the current policy. Stormwater is another factor that is constantly being reviewed, in the PSR step, PA & ED step, and again at the PS&E, but nothing has changed. This takes several thousand dollars to conduct those assessments, only to come to the same conclusion in the first step. Additionally, in the traffic portion there are many analyses, reports, and studies required, which add up to approximately $500k. This is money that could have been spent on infrastructure, but is now being used for this laborious Caltrans process. Costs to get through the process have essentially doubled in the last four years. The estimated cost for Caltrans approval was approximately $4.5M to $5M; that amount is now closer to $10M. Committee member Thornton reached out to WRCOG for a collaborative effort with other member agencies to try to get the process changed.

Mr. Gray stated that the goal would be to understand if the actions of Caltrans are business-as-usual, or a deliberate pattern of behavior. Based on the letter received by Committee member Lancaster listed various studies and analyses. If this is a pattern, the State likely decided to not allow capacity-enhancing projects to move forward, which would affect all member agencies.

Committee member Patrick Thomas suggested getting the project defined as an operational improvement project. The City of Temecula has been working with Caltrans on an auxiliary lane and has had a good experience. Caltrans allowed the project to be processed as a streamline oversight project, and it was allowed to be built under CEQA, thus avoiding more stringent NEMA requirements.

Committee member Lancaster read the letter received from Caltrans, which stated various new requirements. He clarified that Caltrans is merely implementing the policies at the direction of the State. The process has become more onerous, longer, and more expensive, but there are people at Caltrans that can help. Committee member Lancaster agreed that the Committee and Agency could get together to talk to the Caltrans Directors, but ultimately, Caltrans does not create those policies.

Mr. Gray would like to hear from RCTC's perspective. TUMF spends a lot of money on pre-construction activities, which means that there is less money for ROW or construction. It is ok for Caltrans to change the rules or goals, as long as those goals are attainable.

Committee member Lancaster added that the Governor, State Senate and Assembly members are the ones proposing bills that are not implementable at the moment.

Mr. Gray stated that if WRCOG can do something concrete, it will; but at the moment it is uncertain of what exactly that would be. He encouraged Committee members to notify WRCOG staff of any issues and the Agency will do everything it can to help, or at least hear out member agencies' concerns.

Committee member Bob Moehling stated that the City of Murrieta had a similar experience as the City of Calimesa for an interchange that has been proposed since 2010. In 2019, the project went through the environmental process and was elevated to an EIR, which changed various aspects of the project. Also, the Fish and Wildlife agencies are asking for an overcrossing of the 215 freeway, all of which continue to delay the project and increases construction costs.

Committee member Gil Hernandez agreed that the process is cumbersome, and gave an example using the French Valley Interchange, which was proposed in 2002, and estimated to cost a total of $75M. The first phase has been completed, and going into the second phase the project is now at over $300M.

WRCOG staff will be sharing these comments with RCTC staff as it relates to experience working with Caltrans and will return with an update in future meetings.

Action:

1. Received and filed.

C. Confirmation of the TUMF Nexus Study Roadway Network

WRCOG Deputy Executive Director, Chris Gray, reported that the Public Works Committee previously approved a list of roadway projects to be added as TUMF-eligible projects during the TUMF Nexus Study update. The projects will be evaluated to determine if the projects meet the criteria to be added to the Nexus Study.

Committee member Patrick Thomas asked if the RCTC projects would not be included.

Mr. Gray replied that when projects receive outside funding, they remain in the Nexus Study, but a reduction is made in the amount of available funding.

Three additions were requested including:
1. Bundy Canyon Road (2 lanes/4 lanes to 6 lanes)- I-15 to Sunset (City Limits)
2. Nichols Road (2 lanes to 6 lanes)- I-15 to Lake
3. Scott Road (2 lanes to 6 lanes)- Sunset to Murrieta

A comprehensive list of all TUMF Nexus Study projects can be found on the WRCOG website. Anything that has been completed has been removed from the list, and another list of fully completed projects is being developed. All projects will be tested to see if they meet the criteria, and remove if it does not meet those criteria

Action:

1. Approved the Updated TUMF Nexus Study Roadway Network.

(Menifee / Murrieta) 17 yes; 0 no; 0 abstention. Item 6.C was approved.

D. TUMF Zone Revenue Forecasts for Fiscal Years 2023/2024 to 2027/2028 Transportation Improvement Program Updates

WRCOG Staff evaluated several different options to forecast TUMF revenue for the forthcoming

Transportation Improvement Plan (TIP) update including a 3-year and also a 5-year average. Staff recommended the use of a 5-year average which resulted in a total yearly revenue of $26.5M across all five TUMF Zones.

Action:

1. Approved the TUMF Zone Revenue Forecasts for Fiscal Years 2023/2024 to 2027/2028 Transportation Improvement Program.

(Murrieta / County of Riverside) 16 yes; 1 no; 0 abstention. Item 6.D was approved.

7. REPORT FROM THE DEPUTY EXECUTIVE DIRECTOR

Chris Gray, WRCOG Deputy Executive Director, reminded the Committee that the WRCOG General Assembly will be held on June 29th at 4:00 PM at Pechanga Resort Casino. The General Leadership Address will recognize Committee Chairs, so Chair McKibbin will be receiving a lovely acrylic to recognize his term as Chair. A virtual General Assembly was held in 2021, and Committee member Sam Nelson did not receive his award for his term as Public Works Committee Chair in 2021. Mr. Gray presented Committee member Nelson with his acrylic, and thanked all Committee members for attending in person.

Cameron Brown, TUMF Program Manager, is expected to be back in June or July 2023. In the meantime, Brian Piche-Cifuentes will be the contact for TUMF matters such as reimbursement agreements, invoices, credit agreements, etc. If there are any reimbursements or invoices that have not been paid, please forward them to Brian.

TUMF Zone meetings will begin in May 2023.

8. ITEMS FOR FUTURE AGENDAS

1. Update from County Flood Control on Stormwater
2. Nexus Study updates
3. Upates to Nexus Study Roadway costs
4. Special meeting of the TUMF Public Works Committee on May 11, 2023 at 2:00 PM

9. GENERAL ANNOUNCEMENTS

Committee member Jenny Chan stated that RCTC received 25 applications for Regional Arterial Projects, with a total ask of $185M. The TUMF plus Measure A capacity is $135M. The RCTC Evaluation Committee is currently reviewing applications.

Committee member Patrick Thomas offered to share an Alternative Compliance Fee Program for Stormwater.

Mr. Gray stated that new permits will be required for those in the Santa Ana Watershed.

10. NEXT MEETING

The next Public Works Committee meeting scheduled for Thursday, June 8, 2023, at 2:00 p.m., in

WRCOG's office located at 3390 University Avenue, Suite 200, Riverside.

11. ADJOURNMENT

The meeting of the Public Works Committee adjourned at 3:31 p.m.

Western Riverside Council of Governments
Public Works Committee

Staff Report

Subject: Streetlight Program, Broadband, and Energy Resilience Activities Update

Contact: Daniel Soltero, Program Manager, dsoltero@wrcog.us, (951) 405-6738

Date: June 8, 2023

Requested Action(s):

1. Receive and file.

Purpose:

The purpose of this item is to provide activity updates from the Regional Streetlight Program, broadband funding and activity updates.

WRCOG 2022-2027 Strategic Plan Goal:

Goal #5 - Develop projects and programs that improve infrastructure and sustainable development in our subregion.

Background:

The Energy Department administers and houses multiple regional programs and initiatives, including the Regional Streetlight Program, the Smart Streetlight Implementation Plan & Broadband Assessment, and the Western Riverside County Energy Resilience Plan.

At the direction of the Executive Committee, WRCOG developed a Regional Streetlight Program that assisted eleven local agencies with purchasing and retrofitting their streetlights to LED lighting fixtures in order to provide more economic operations (i.e., lower maintenance costs and reduced energy use). Local control of the streetlight system provides agencies with opportunities for future revenue generation such as digital-ready networks, telecommunications, and information technology strategies. In order to identify and elaborate on these new opportunities related to smart cities and broadband, WRCOG developed a Smart Streetlights Implementation Plan and Broadband Assessment. On August 1, 2022, the Executive Committee directed staff to implement Phase 1 of the Smart Streetlight Implementation Plan and to provide information to members on broadband and related funding opportunities.

In April 2020, WRCOG was awarded a $200,000 grant by the Bay Area Council's California Resilience Challenge to develop an Energy Resilience Plan to build resiliency against power shutoffs and/or power issues at subregional critical facilities by developing a blueprint for energy resiliency technologies, projects, and strategies for member agencies. In December 2022, the Executive Committee approved the Western Riverside County Energy Resilience Plan and directed staff to pursue funding opportunities to advance the identified projects in the design process and conduct energy resilience planning activities.

Integrated Climate Adaptation and Resiliency Program (ICARP) Adaptation Planning Grant

In March 2023, staff submitted a grant application to the ICARP Adaptation Planning Grant Program, which provides funding to help fill planning needs, provides communities with the resources to identify climate resilience priorities, and supports the development of climate-resilient projects across the State. The grant application proposes to develop an Energy Resilience Plan (ERP) 2.0 to conduct up to 10 microgrid feasibility studies at sites that are ranked highly in the Energy Resilience Plan's prioritization matrix. The ERP 2.0 also includes public outreach and community workshops to learn of community impacts from power outages and seek input on local microgrids and community resilience centers. In seeking a qualified partner to assist in community outreach and engagement, WRCOG proposed a partnership with GRID Alternatives Inland Empire (GRID), a community-based 501(c)(3) organization that serves under-invested communities throughout Riverside, San Bernardino, Inyo counties and neighboring tribal nations. GRID develops and implements clean energy projects and programs to benefit low-income households, under-invested communities, affordable housing providers, municipalities, and priority populations experiencing systemic barriers to employment.

In April 2023, staff were informed by the ICARP Grants Program Manager that WRCOG's proposal was accepted, passed the initial review, and was advanced to the Interagency Review Panel. Staff anticipate receiving an update by the end of May 2023, and the ICARP Adaptation Planning Grant awards are scheduled to be announced in June 2023.

Broadband Activity & Funding Updates

As directed by the Executive Committee, pursuant to the Broadband Assessment, staff are tracking broadband funding opportunities and sharing that information with member agencies.

Senate Bill 156 (Chapter 112, Statutes of 2021), expands the State's broadband fiber infrastructure and increase internet connectivity for families and businesses. The goal of this $6B investment is to provide equitable access to high-speed broadband to unserved and underserved populations in California and is allocated in the following ways:

- $3.25B for an open-access, statewide, broadband middle-mile network
- $2B for broadband last-mile infrastructure projects
- $750M for a loan loss reserve to support local government broadband infrastructure development
- $50M for Local Agency Technical Assistance grants including funding for tribal entities.

The Local Agency Technical Assistance (LATA) Grants Program was allocated $50M in grant funds to support local agencies and Tribal governments in their efforts to expand broadband service to unserved and underserved Californians. As of March 24, 2023 the LATA Grants Program received 117 applications from local agencies requesting $52.4M, and is no longer receiving applications from local agencies. Due to local agency allocation of $45M being oversubscribed, the City of Menifee was not awarded a LATA grant. However, in Riverside County, five local agencies were awarded LATA grants, which include the County of Riverside, City of Banning Electric Utility Department, City of Indio, City of Palm Springs, and the Coachella Valley Association of Governments. The LATA Grants Program is still receiving applications from Tribal governments as the $5M set-aside allocation for Tribal governments has not been fully spent.

The Federal Funding Account has a budget of $42B and will fund last-mile broadband infrastructure

projects to connect unserved and underserved Californians with high-speed broadband service. Each county, regardless of size, has $5 million set aside for it, and the remaining funding is allocated based on each county's proportionate share of California households without access to 100 Mbps broadband internet service. On May 2, 2023, the CPUC published revised Federal Funding Account Maps which removed the previous "priority area" designation that was presented to the WRCOG Committees in March and April 2023. Instead, the updated Maps' census block and broadband data was refined and reformatted to be more granular about households served with broadband (Attachment 1). The new Map now includes additional layers to include SB 535 Disadvantaged Communities and CalEnviroScreen data, which will be used to incorporate equity into the project scoring process, and a Map User Manual and updated Data Dictionary was published as well. The CPUC anticipates opening the Federal Funding Account for applications in late June or early July 2023.

On May 16, 2023, staff attended the Broadband For All, Digital Equity, and BEAD Regional Planning Workshop at California State University, San Bernardino. This workshop held by the Inland Empire Regional Broadband Consortium, California Public Utilities Commission, California Department of Technology, County of Riverside, and County of San Bernardino, sought public input for the State's Digital Equity Plan and Broadband Equity, Access & Deployment (BEAD) 5-Year Action Plan that will help determine how future federal dollars are allocated within the State to address digital inequities in communities. The three-pronged approach for the State's Digital Equity Plan and BEAD Action Plan focus on broadband adoption (or digital literacy), broadband infrastructure access, and broadband affordability.

Staff would also like to remind WRCOG Members of the Local Jurisdiction Permitting Playbook, which provides guidance on how local governments can support middle-mile and last-mile broadband deployment in their communities (see Attachment 2). The playbook is organized in three primary strategies: 1) Enhancing permitting process, 2) Facilitating access to assets, and 3) Creating equitable access to information. The strategies and smart practices presented in this playbook are intended to enable local agencies to receive value in return for the efforts they make to enable a broadband deployer's efforts. That value may be financial (such as a lease payment in return for access to a city's fiber network) or it may be less tangible (such as a commitment by the partner to deliver broadband service to low-income residents in return for access to a city's excess conduit). In either scenario, the locality will facilitate broadband deployment in partnership with the deployer; the relationship should not favor the deployer over the public interest.

Regional Streetlight Program Update

In May 2023, WRCOG released a Request for Proposals (RFP) via PlanetBids to solicit qualified respondents to provide streetlight operation and maintenance (O&M) services for the nine participating agencies in the Regional Streetlight Program. This RFP is seeking streetlight O&M services such as responding to and rectifying streetlight outages, responding to pole knockdowns and replacing the streetlight, and as-needed LED retrofit and pole tag installation services for approximately 36,000 streetlights. At the request of participating agencies this RFP is seeking to provide services to decorative style streetlights, in addition to the more common cobra head style streetlight. Proposals are due in June 2023, and staff anticipate bringing a recommendation to award a respondent to the WRCOG Committees in the August 2023 - October 2023 timeframe.

As part of the RFP process, staff conducted outreach to the participating agencies to seek

representatives that would like to participate in the RFP development and proposal review process. To date, staff from the Cities of Lake Elsinore and Wildomar, and the Jurupa Community Services District have volunteered to participate in the bid review process, including reviewing bids, participating in interviews, and providing feedback to award a respondent. Staff's goal is to have representatives from four to five participating agencies of the Regional Streetlight Program (or 50% of the participating members) participate in the proposal review process and will be conducting additional outreach to seek volunteers. This process is being replicated after WRCOG's 2017 RFP for streetlight O&M, in which Member agency representatives were integral in selecting a contractor.

Since November 2022, staff have received requests from the Cities of Eastvale, Hemet, Menifee, Perris, and San Jacinto to add new streetlights to the Program. As member agencies accept new developments with agency-owned streetlights, such as LS-2 unmetered or LS-3 metered systems, member agency staff become responsible for the maintenance of those streetlights, and thus they are requesting they be added to the scope of the Program's O&M contract. As such, WRCOG staff have been coordinating with Member Agency staff to receive the streetlight inventories and build specifications to update the GIS maps, billing with the O&M contractor, and WRCOG Administrative Fee payment schedules. As new streetlights are added to the Program, WRCOG staff are coordinating with members to determine if the streetlights need LED retrofits and pole tags installed, and if so those materials are being ordered and work is being scheduled. Staff anticipate a minor increase in revenue as members add streetlights to the Program.

Prior Action(s):
Energy Resilience Plan:

April 3, 2023: The Executive Committee received and filed.

March 8, 2023: The Administration & Finance Committee received and filed.

February 16, 2023: The Technical Advisory Committee received and filed.

February 9, 2023: The Public Works Committee received and filed.

December 5, 2022: The Executive Committee approved the Western Riverside County Energy Resilience Plan and directed staff to pursue funding opportunities to advance the identified projects further along in the design process and conduct energy resilience planning activities.

November 17, 2022: The Technical Advisory Committee recommended that the Executive Committee approve the final version of the Western Riverside County Energy Resilience Plan, and recommended that the Executive Committee direct staff to pursue funding opportunities to advance the identified projects further along in the design process.

November 9, 2022: The Administration & Finance Committee recommended that the Executive Committee approve the final version of the Western Riverside County Energy Resilience Plan, and recommended that the Executive Committee direct staff to pursue funding opportunities to advance the identified projects further along in the design process.

Smart Streetlight Implementation Plan & Broadband Assessment:

April 3, 2023: The Executive Committee received and filed.

March 8, 2023: The Administration & Finance Committee received and filed.

February 16, 2023: The Technical Advisory Committee received and filed.

February 9, 2023: The Public Works Committee received and filed.

October 13, 2022: The Public Works Committee received and filed.

October 12, 2022: The Administration & Finance committee received and filed.

August 1, 2022: The Executive Committee 1) accepted the Smart Streetlight Implementation Plan and Broadband Assessment; 2) directed staff to implement Phase 1 of the Smart Streetlight Implementation Plan; and 3) directed staff to provide bi-monthly updates on broadband funding opportunities and convene meetings as needed to disseminate information on broadband-related funding opportunities.

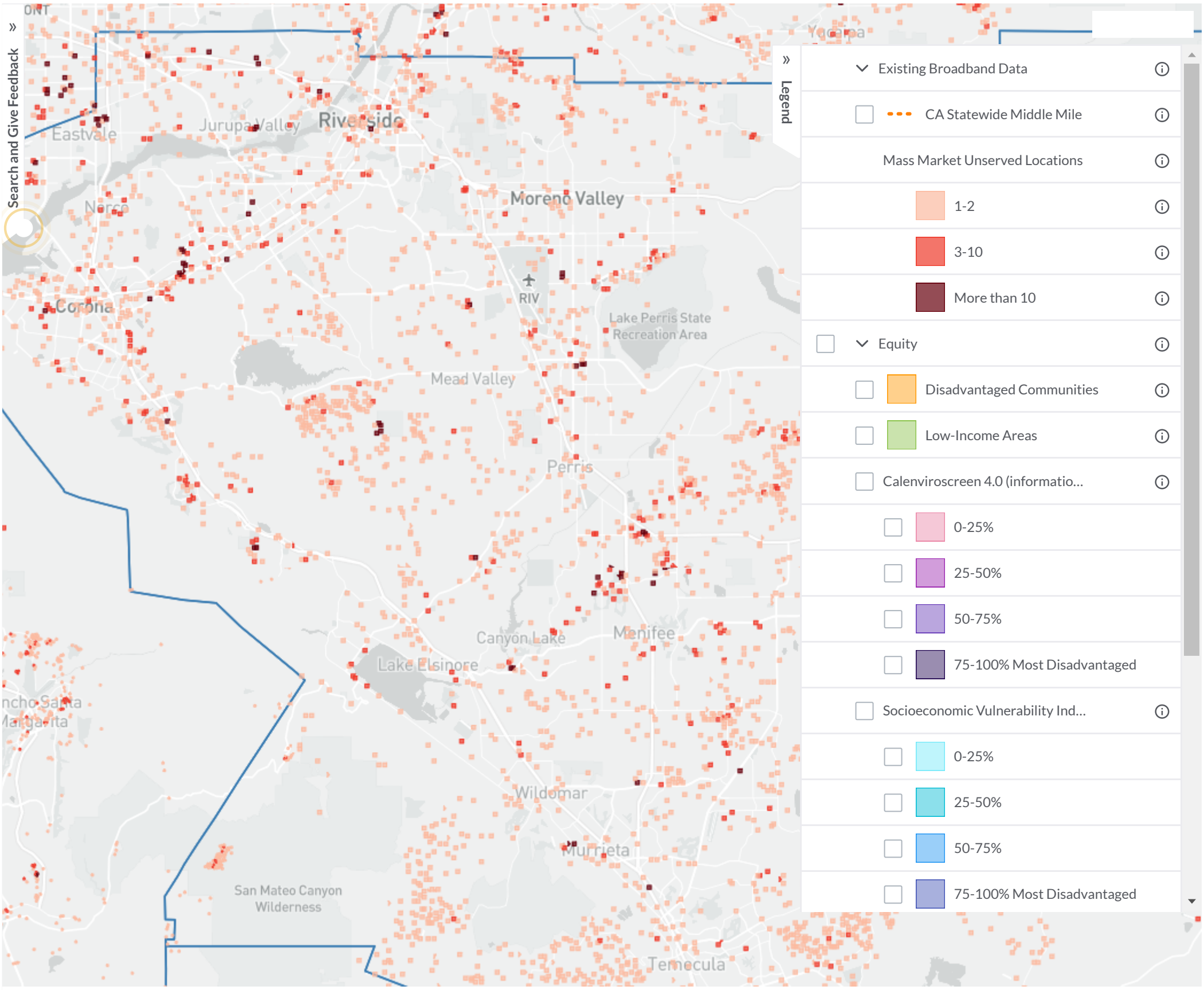
Fiscal Impact:
This item is for informational purposes only, therefore, there is no fiscal impact. All staff efforts related to the Regional Streetlight Program and Broadband and are budgeted in the Streetlight Program budget (110-67-2026) for Fiscal Year 2022/2023. Should WRCOG be awarded the ICARP Adaptation Planning Grant it will require a budget amendment to include expenditures and revenues related to the Energy Resilience Plan.

Attachment(s):
Attachment 1 - Federal Funding Account Map May 2, 2023 Update
Attachment 2 - California Local Jurisdiction Permitting Playbook

Attachment

Federal Funding Account
Map - May 2, 2023 Update

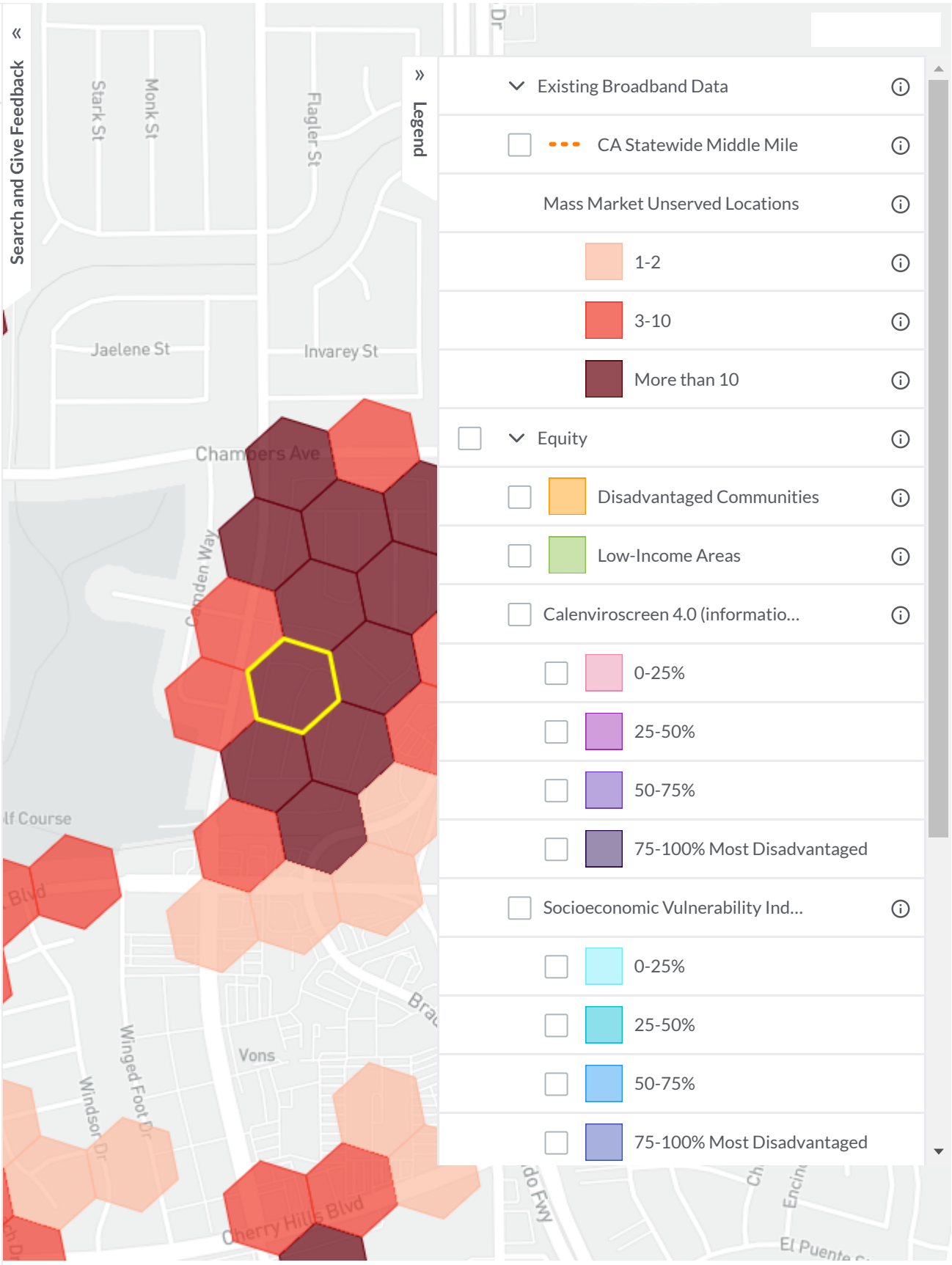
California Public Utilities Commission
Federal Funding Account



Type a location address to target an area of interest

Mass Market Unserved Locations

Count	23
Number of Unserved	More than 10



Attachment

California Local Jurisdiction
Permitting Playbook

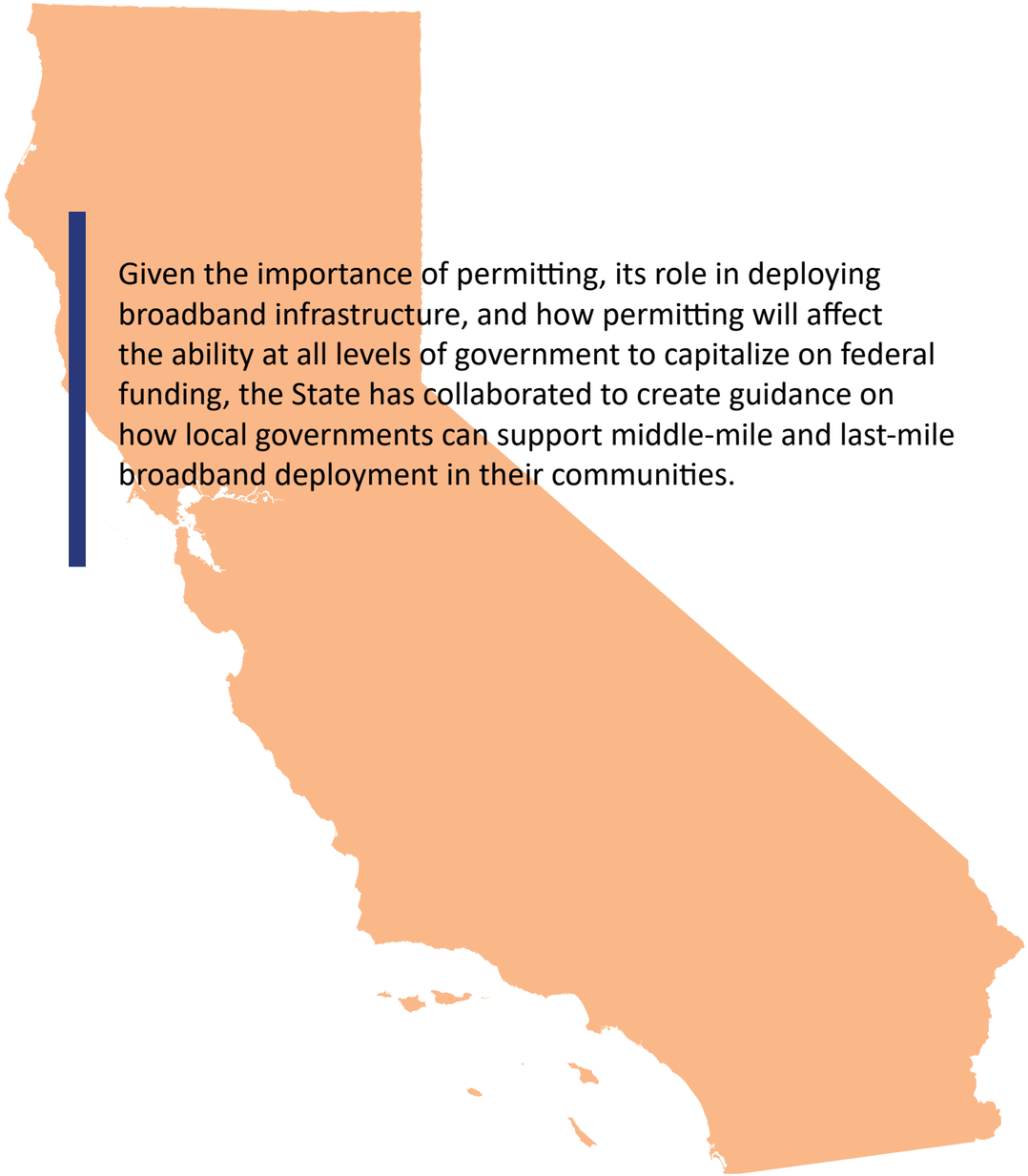
State of California
Local Permitting Playbook

August 2022

Acknowledgements

Created in partnership by the California Governor's Office of Business and Economic Development, California Department of Technology, California Public Utilities Commission, and California Emerging Technology Fund

We appreciate the invaluable support of our outreach supporters during the preparation of this playbook–Rural County Representatives of California (RCRC), California State Association of Counties (CSAC), League of California Cities (Cal Cities), California Forward (CA FWD), and California's regional Metropolitan Planning Organizations (MPO), including Southern California Association of Governments (SCAG) and San Diego Association of Governments (SANDAG). The contents of this document also reflect the comments and input of local government stakeholders, whose participation in the process informed the strategies, smart practices, and actions identified below. This playbook is intended as a tool—not a prescriptive set of recommendations—and will be revised and expanded to capture new input from the stakeholder community.



Given the importance of permitting, its role in deploying broadband infrastructure, and how permitting will affect the ability at all levels of government to capitalize on federal funding, the State has collaborated to create guidance on how local governments can support middle-mile and last-mile broadband deployment in their communities.

Introduction

The California Local Permitting Playbook offers strategies designed to enable communities to prepare for broadband investment—recognizing that an unprecedented amount of state and federal funding has been allocated to expanding broadband infrastructure in California,[1] and that local government permitting and planning staffs have varying degrees of experience with and knowledge of broadband deployment.

This playbook reflects a commitment by the State of California to advance the California Broadband for All Action Plan, which identified the support of enhanced permitting processes at the local level as a way the State can help "ensure all Californians have high-performance broadband available at home, schools, libraries, and businesses."[2]

The potential actions and strategies in this playbook are reflective of smart practices, and it is acknowledged that every locality has unique resources and challenges which may preclude implementation of some or all of these practices.

This permitting playbook focuses on efforts local governments can make to facilitate broadband project development—with or without public funding, and at varying levels of complexity. It presents a menu of options that are considered smart practices for permitting and related processes under certain circumstances. These approaches are not all appropriate for all communities—nor would any given community be likely to adopt every practice described here. Rather, the playbook presents a set of options a local government can evaluate in light of its public policy priorities, its community's unique circumstances, and its residents' needs.

1 Including funding allocated in SB 156 for the Middle-Mile Broadband Initiative (https://middle-mile-broadband-initiative.cdt.ca.gov/) and last-mile and adoption programs administered by the California Public Utilities Commission (https://broadbandforall.cdt.ca.gov/last-mile-broadband/).

2 "Broadband for All Action Plan," California Broadband Council, 2020, https://broadbandcouncil.ca.gov/wp-content/uploads/sites/68/2020/12/BB4All-Action-Plan-Final.pdf. See also: "Action plan progress tracker" (Goal 1, Action 6), Broadband for All, https://broadbandforall.cdt.ca.gov/progress-tracker/.

The smart practices are organized within a framework of three primary strategies for improving a broadband deployer's costs and timelines:

1. Enhancing permitting processes

Smart practices for streamlining permitting processes to improve coordination with applicants, leverage local resources, and clarify expectations and requirements for project deployment

2. Facilitating access to assets

Smart practices for maximizing access to fiber, conduit, real estate, or other facilities that would make broadband infrastructure deployment less costly

3. Creating equitable access to information

Smart practices for sharing information (such as detailed maps) relevant to broadband planning among a wide range of potential deployers

A final note: The strategies and smart practices presented in this playbook are intended to enable localities to receive value in return for the efforts they make to enable a broadband deployer's efforts. That value may be financial (such as a lease payment in return for access to a city's fiber network) or it may be less tangible (such as a commitment by the partner to deliver broadband service to low-income residents in return for access to a city's excess conduit). Either way, the locality will facilitate broadband deployment in partnership with the deployer; the relationship should not favor the deployer over the public interest.

Broadband Glossary

Aerial construction – fiber cables installed on utility poles in a dedicated vertical space near other telecommunications cables and physically separated from electric power cables.

Conduit – a tube installed underground to protect fiber optic cables; conduit can be physically subdivided using innerduct.

Dig Once – a policy of coordinating the installation of multiple entities' fiber or conduit in certain circumstances when underground construction occurs in a community.

Fiber – a fiber optic cable is an extremely high-capacity broadband technology; a fiber cable can include hundreds of individual fiber optic strands—each of which has the capacity to deliver high-speed broadband services. The fiber is "lit" when network electronics are installed at both ends of a network route; cables installed without electronics are called "dark fiber."

Geographic information system (GIS) – a computer application that enables users to create and analyze maps based on geographic location data; the California Interactive Broadband Map (https://www.broadbandmap.ca.gov/) is an example of a GIS-based tool.

Hub site – a small standalone hut or a secure room in an existing building that houses network electronics.

Internet service provider (ISP) – a public or private entity that delivers broadband service to customers.

Last-mile – in networking, the final part of a network connection to a home, business, or community institution.

Make-ready – the work required to create space on a utility pole for the attachment of a new fiber optic cable; make-ready includes physically moving other cables that are already attached to a pole to create the vertical clearances required by national safety standards. Make-ready may require replacing a utility pole with a new, taller pole to accommodate the new fiber cable.

Middle-mile – in networking, the connection from the global internet networks (e.g., located at a data center or point of presence, often in a large city) to a last-mile network segment (e.g., at a network hub near a community served by an ISP); California's Middle Mile Broadband Initiative identified 10,000 miles of proposed middle-mile routes that would enable ISPs to connect currently unserved customers to the internet.[3]

Underground construction – fiber or conduit installed in the ground, typically in the public right-of-way.

3 "Middle Mile Broadband Initiative," California Broadband for All, https://middle-mile-broadband-initiative.cdt.ca.gov/

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Smart practices for enhancing permitting processes to improve coordination with applicants, leverage local resources, and clarify expectations and requirements for project deployment

Smooth permitting processes enhance broadband buildout and deployment, whether by a locality itself or by a private or public partner. Most localities have experience in this regard, whether in terms of broadband or some other type of public infrastructure like roads or school buildings or traffic cameras. An efficient procurement process is enormously helpful in any public project.

Similarly, efficient and transparent processes around permitting, rights-of-way access, and inspections can help with broadband construction. Subject—of course—to the needs of the community to protect public interests and public safety, as well as the resources available to the locality—the strategies presented here focus on enhancing existing processes for the benefit of the community and broadband deployers.

Smart practice 1A: Developing and sharing information about relevant permitting and processes

Action: Developing clear construction design standards and regularly updating the standards with industry and expert input

Developing design standards for aerial and underground fiber and conduit promotes consistent and safe construction practices across broadband deployments. Standards can help enhance the permitting application and review processes. And design requirements can help a community maintain certain aesthetic standards.

These design standards should follow engineering smart practices and industry input. They should also be publicly accessible and transparent.

For example, Santa Clara County sought to facilitate safe and consistent construction, and to reduce design review timelines. To that end, the County published design standards including:

- Right-of-way diagrams and typical utility locations
- Typical utility trench construction and pavement restoration
- Pole and conduit bonding

Following the publication of the standard, County staff reported quicker review times, and that the standards led to uniform aesthetics.

As with any standard, broadband-related infrastructure design requirements need periodic reviews (e.g., every three or five years) to ensure they remain strong. Regularly updating design standards with industry and expert input will help ensure the standards adapt to evolving construction smart practices. This approach also promotes efficient and cost-effective construction practices.

Considerations

1. How to allocate staff and resources to updates
2. Process for gathering industry and expert input

Action: Developing a telecommunications permitting manual

Collecting all telecommunications deployment information in a broadband permitting manual (which could also take the form of a website or online portal that aggregates requirements, application forms, standards, process workflows, fee lists, and so on) will allow ISPs, subcontractors, administrators, and the public to understand broadband deployment from start to finish. For example, the City of Los Angeles developed a policy manual for all types of permit applications that clearly explains the rationale behind certain permits and how to apply for them.

Full transparency about these processes is perhaps the single most effective means by which to enable the communications industry to expeditiously plan and deploy networks. Centralizing this information also improves the process for updating technical details.

Full transparency about these processes is perhaps the single most effective means by which to enable the communications industry to expeditiously plan and deploy networks.

Considerations

1. Developing a manual may take considerable time and resources
2. How to develop mechanisms to routinely update the manual with industry and public feedback

Action: Publishing permit timeline expectations and metrics

Publishing expected durations for each step in the permitting process—along with average and maximum timelines in practice—creates transparency and accountability. The City of Oakland, for example, publishes average and maximum timelines for each step in its encroachment permit process (see Figure 1). As a result, applicants and the City have a shared understanding of typical permit processing timelines.

For example, whether your community commits to review permit applications within three days or 10 days or 20 days, that commitment should be publicized and then consistently met. Localities have limited resources—and sometime many different companies and industries can simultaneously require local permit review and other types of local support. Thus, local needs and resources will determine how long that process will take—while transparency about the amount of time, and a firm commitment to adhering to that timeframe, will meet the needs of the private sector broadband provider. The provider may wish for a faster process, but at a minimum it will have the benefit of a transparent and open process—with a predictable timeframe under which it can plan its project.

The need for transparency and communication is mutual: much as the locality should be open about its processes, the private deployer should do the same and should stage its buildout to maximize cooperation with the locality. Pre-construction conferences, for example, allow private providers and localities to understand and coordinate each other's plans and timelines. This kind of cooperative planning enables a willing provider to stage permit and inspection requests rather than filing for an overwhelming number of permits at one time.

For localities where this approach may be feasible, establishing expected timelines can help the local government assess its permitting timelines and measure the impact of changes in permitting policy and procedure.

Considerations

1. Need to allocate staff or hire a consultant to assess permitting timelines
2. Need to map the permitting process workflow
3. Need to understand provider's staffing

Action: Creating a mechanism for receiving feedback from applicants on the application process

Seeking feedback on the permitting process is a way that localities can foster relationships with broadband deployers—and also gather valuable information about how it might further optimize its processes. A local government might include survey questions in the permit application, send applicants a post-application survey after a permit is issued, convene focus groups, or conduct one-on-one interviews with applicants to inform process improvement.

These approaches might enable a locality to receive direct, formal feedback on the permitting process—with a goal of identifying inefficiencies (which affect both the local government staff and the applicants).

Considerations

1. Establish key performance indicators to track processes
2. Develop a series of standard questions with measurable outcomes
3. Embed the survey in the application process
4. Assess staffing and capacity requirements so as to be able to sufficiently resource the effort
5. Consider whether technology supports such as online portals for communication can address capacity issues

Smart practice 1B: Optimizing permitting for broadband projects

Every locality knows from experience that a government project in which certain processes are made as efficient as possible can be more expeditiously initiated, executed, and concluded. For example, a technology project that requires services or equipment will to some degree turn on the efficiency of the procurement process. The same is true in a broadband project. And that is the case whether the entity building the broadband facilities is the locality itself or a private entity.

However, a locality, unlike a private sector partner, cannot focus its internal processes and efforts on one single end goal. Localities that are considering broadband-related permits are simultaneously juggling a range of considerations, including that:

1. broadband projects can impact other areas of local responsibility, such as the need to manage rights-of-way so commerce and movement are not disrupted;
2. broadband process efficiency efforts will entail public costs, such as for hiring of new staff; and
3. other local interests and projects compete with broadband projects for localities' resources and attention.

In this context of understanding the totality of local needs and projects, all clamoring for the same resources, the strategies presented here are intended to enable localities to facilitate broadband projects without sacrificing the localities' ability to simultaneously attend to other projects and priorities.

Action: Establishing a single point of contact for broadband permitting

Assigning one staff member (or, potentially, a small team within the relevant government agency or department) can optimize elements of the permitting process for both the locality and applicants—while retaining the protections and critical value of the permitting process.

By clearly identifying a single point of contact for broadband permit planning and applications, a locality can reduce the time applicants wait for responses to questions; increase the efficiency of the permit application review process; develop expertise among the locality's permit technicians; and potentially reduce the impact of the permit application caseload on staff members who do not have direct responsibility—but who previously would have fielded calls and spent time tracking down answers for applicants.

The City of Riverside, for example, developed a one-stop permitting approach for broadband (and non-broadband) applications.

Considerations

1. Organizational structure
2. Training and professional development
3. Funding

Action: Creating a dedicate telecommunications permit

A dedicated permit can facilitate permitting, communications, and data collection around telecommunications projects. For localities with the capacity to do so, a dedicated permit can create a separation and specialization in staffing for permitting staff who focus on broadband-related permits and staff who focus on the other types of permitting common to local oversight. In tandem with a single point of contact for broadband permitting issues and some of the other smart practices identified here, a dedicated permit could optimize the permitting process for ISPs and other entities seeking to deploy broadband infrastructure.

As one example, the City of Campbell amended its municipal code to include all telecommunications projects in the public right-of-way under an encroachment permit, which centralized the City's permit application submission and review processes.

Action: Distinguishing between major and minor broadband permits

Distinguishing between major and minor permits allows the permitting agency to expedite smaller or routine broadband projects. The City of Oakland, for example, distinguishes between major and minor permits as follows:

- Minor encroachment: "…an encroachment into the public right-of-way resting on or projecting into the sidewalk area, but which is not structurally attached to a building, such as flowerpots, planter boxes, clocks, flagpole sockets, bus shelters, phone booths, bike racks, fences, non-advertising benches, curbs around planter areas, displays of flowers, fresh fruits and vegetables."

- Major encroachment: "…anything attached to a structure or constructed in place so that it projects into the public right-of-way such as basement vaults, kiosks, covered conveyors, crane extensions, earth retaining structures, and structure connected planter boxes, fences, or curbs. Projections over any public street, alley or sidewalk in excess of the limitations specified in the Oakland Building Code shall also be classified as major encroachments, including theater marquees, signs suspended above the sidewalk, oriel windows, balconies, cornices and other architectural projections."

This approach has enabled an enhanced permitting process that reduces the application timeline while still protecting local interests (e.g., distinguishing between commercial arteries and residential roads).

Another type of difference in construction that should be addressed while considering the permitting process is the difference between broadband projects undertaken within the public road right-of-way (often accomplished through an encroachment permit) and those outside the right-of-way – and among the latter, the difference between projects on public property (often accomplished through a lease) and those on private property (often accomplished through a building and/or grading permit).

Considerations

1. How to determine the threshold between major and minor (e.g., cost, type of project, mileage)

2. How to allocate alternative staff for application review (e.g., field offices)

3. How to optimize the different processes necessary for permits associated with construction in any of the following: in the public rights-of-way, on other public property, and on private property

Action: Developing an online permitting portal

An online location for all permit submissions can enhance applicants' experience with the permitting process and create opportunities for departmental and interdepartmental collaboration. By eliminating the manual processes associated with permit intake and data entry, an online portal—if it is feasible for a locality to implement, given the budgetary and staffing resources required—could decrease permitting timelines and speed time to deployment. Further, because an online portal could be configured to capture all elements of an application in a central database, such an approach would have additional benefits in terms of the locality's record-keeping, mapping, and planning.

As one example, Santa Clara County's electronic permitting system is shared by its Department of Roads and Airports and Department of Regional Planning. Having a single database for all project applications has led to easier collaboration, and enables applicants to submit all permit application materials in one place.

Considerations

1. Which permits, departments, and jurisdictions to include under one roof

2. Governance and data sharing

Action: Developing a batch permitting process

For localities anticipating large broadband-related projects that will require extensive but potentially repetitive permit applications, batch permitting might allow applicants to request a single permit that would cover a project typically subject to multiple permit applications. As with some of the other strategies presented here, a batch permitting process might reduce the permit application caseload, decrease the permit processing timeline, and improve a broadband deployer's timeline.

The City of Long Beach, for example, developed a bulk permitting process in 2020 for small cell wireless facilities that allows up to 10 sites to be grouped under a single permit. Applicants must negotiate specifications before submitting the application, and sites must all be either Tier A (commercial arterial) or Tier B (residential roads). This enhanced permitting process has improved the City's timeline while still protecting local interests (e.g., distinguishing between siting locations proposed on commercial arteries and residential roads).

Considerations

1. Determining permit boundaries (i.e., limiting bulk permits to a certain number of projects or a certain geographic area)
2. Allocating staff for dedicated application review

Action: Coordinating permitting policies and procedures among jurisdictions in the region

Regional alignment on permitting policies and procedures is an innovative opportunity to standardize permitting processes, thereby enhancing the application process. For example, the San Diego Association of Governments is adding broadband to the Regional Standards Drawing Book.

A primary benefit of this approach, to the extent it is feasible to implement, is that it creates a straightforward and predictable permitting process for applicants—which might otherwise apply for a single permit they believe will meet all requirements, only to discover at a later point that their project actually requires additional permits from other local, regional, or state entities.

Considerations

1. How to promote regional collaboration (e.g., a resource hub on the locality's website, a regional taskforce, leadership from elected officials)
2. How to incorporate localities, special jurisdictions, and councils of government
3. How to resolve policy disagreements

Smart practice 1C: Revisiting all policies periodically to comply with changing state and federal rules

Regularly revisiting permitting processes can help ensure compliance with current federal and state requirements. Such periodic reviews and revisions may also minimize delays related to questions from applicants. This approach also will help ensure that permitting processes and timelines follow the evolving set of state and federal regulations.

Considerations

1. Identify a staff or department to be tasked with following developments in telecommunications law, such as a City Attorney's Office or County Counsel
2. Resources available from the California League of Cities, California State Association of Counties, and Rural County Representatives of California

Smart practice 1D: Developing strategies for scaling up staffing and support

Attempts to streamline local processes frequently conflict with the need for resources to enable the processes—particularly for massive short-term projects such as a broadband network deployment. The need to issue thousands of permits and assess thousands of job sites in a very short timeframe challenge localities without sufficient staff to support such enormous short-term efforts. Also, it is not financially feasible for localities to maintain sufficient staff for such intensive short-term efforts, because those staff members will have little or nothing to do during the interim periods when large projects are not underway.

This significant public sector challenge affects both the locality and the private broadband provider, with both needing deployment to proceed as quickly and efficiently as possible. One potential solution is for the locality to find means by which local processes are respected but the broadband provider can use its own resources to supplement public sector staff.

For example, a locality can undertake a procurement process in which it prequalifies contractors with the experience and the independence to serve as third-party inspectors of new broadband facilities. Through the preclearance process, the locality qualifies companies that can be contracted by a broadband provider to supplement the locality's own inspection staff.

The locality's own staff can check a sample of the contractor's inspection work and verify its quality and validity—to ensure that the contractors remain independent and meet the locality's needs, even as the contractor is hired and paid by the provider. Any contractor whose inspections do not meet the locality's standards must be removed from the list of approved vendors—a penalty that incents the vendor to work appropriately and enables the locality to maintain quality control and quality assurance.

This mechanism was used effectively during the large cable upgrades of the late 1990s. Some local governments allowed cable operators to pay third parties (either directly or by reimbursing the locality) to independently verify compliance with design and construction standards, thus enabling fast approval of the operator's design and construction even where the locality did not have the necessary internal resources for the entire process.

Considerations

1. Administration to negotiate agreement terms
2. Oversight of independent inspectors
3. Concerns of small companies that cannot afford inspectors

2. Strategies for facilitating access to key assets

Smart practices:

A. Creating access to public assets for new deployment

B. Creating conditions that make deployment of private assets more likely

C. Encouraging deployment of public and private assets

Smart practices for maximizing access to fiber, conduit, real estate, or other facilities that would make broadband infrastructure deployment less costly

One of the primary challenges to deploying broadband infrastructure is the high capital cost of network construction. Localities own assets that can reduce the need to construct some elements of new networks and thereby reduce total up-front capital costs. A locality may improve the investment scenario for a potential deployer if the locality can make assets like fiber optic cables, conduit (i.e., a protective tube installed underground through which fiber can be pulled at low cost), and secure space in government-owned buildings (i.e., for locating a provider's network electronics) available for private use.

As with all of the strategies and smart practices presented in this playbook, the intent here is for the locality to receive value in return for the efforts it makes to enable a broadband deployer's efforts. That value may be financial (such as a lease payment in return for access to a city's fiber network) or it may be less tangible (such as a commitment by the partner to deliver broadband service to low-income residents in return for access to a city's excess conduit). Either way, the locality will facilitate broadband deployment in partnership with the deployer; the relationship should not favor the deployer over the public interest.

Smart practice 2A: Creating access to public assets for new deployment

The capital cost of deploying broadband can be reduced through access to three types of public assets:

1. **Unlit (dark) fiber optic strands**, either underground or on utility poles, such as excess fiber that a city may have constructed to meet its public safety or internal networking needs; because each fiber cable has dozens or hundreds of separate fiber strands, and each fiber optic strand holds enormous capacity, a locality can sell or lease excess strands within a fiber bundle without compromising the original purpose of the fiber
2. **Excess capacity in underground communications conduit,** which a deployer could use to install new fiber
3. **Real estate,** such as public buildings with secure rooms or cabinets where networking equipment can be located—or small parcels of land where network equipment huts can be constructed

Fiber and conduit are particularly valuable assets where construction is most costly or difficult, such as urban areas; crossings of bridges, waterways, and rail lines; key building entries; and alongside major roads.

Action: Enabling leasing of public assets to ISPs

Leasing excess strands in a local network can help in establishing an internet service provider's (ISP) network backbone. If the locality's fiber widely covers the community, it can provide an immediate way to establish a point of presence in key areas (such as near unserved apartment buildings or on the edge of rural, unincorporated land).

A locality's available conduit can also assist in broadband deployment. Pulling new fiber cables through a locality's existing

conduit can reduce a provider's need for construction[4] —lowering its capital costs and time to build.

In leasing existing fiber or conduit, the locality benefits by speeding broadband deployment, reducing damage and disruption to the rights-of-way, and minimizing impacts on vehicular and pedestrian traffic; it may also earn lease revenue.

And while not all communities have built their own fiber or conduit, almost all localities own real estate in locations that can help make a new broadband network more feasible. Localities may be able to reduce the cost and complexity of an ISP's deployment by providing access to secure spaces for network equipment. For example, a secure room in a city building with sufficient power access and ventilation might be used for a data center or network operations center. A county-owned plot of land or right-of-way might host a hut—designed to blend in to the neighborhood's aesthetics—for the network equipment and edge computing devices that must be placed in or near the neighborhoods where homes and businesses are connected to a new fiber or wireless network.

Experience indicates that access to assets such as these may decrease a network deployer's initial capital costs by up to about 10 percent, depending on the extent of the community's infrastructure. In all such cases, however, it is important to note the locality's need to consider present and future uses of public property before making it available to any private party. Similarly, any asset leases must comply with state laws and local ordinances pertaining to leasing public property—and improvements installed on public property must also comply with all applicable legal requirements (such as prevailing wage and/or competitive bidding, when triggered).

Considerations

1. Requires a database[5] of public assets' locations and other criteria needed by telecommunications providers
2. Project management staffing may be needed
3. Requires a leasing agreement and term sheet

4 Pulling new fiber through an existing conduit route is significantly less expensive than the underground construction required to install new conduit and fiber.

5 A GIS database is ideal but not critical.

Leasing fiber and conduit

Fiber and conduit leasing represents another smart practice and successful strategy used by many localities and states. A leasing program is designed to create access to broadband infrastructure where none otherwise exists on the market—often in the "middle-mile" that extends from a global internet connection point (typically in a large city) to a local community—thus reducing the cost for ISPs to build "last-mile" connections to customers' homes and businesses.

A fiber or conduit leasing program can be structured to be competitively neutral and open to all providers. To protect the locality's own long-term flexibility and use of the assets, and to ensure opportunity by the private sector, leasing of available assets by any single entity can be limited to a fixed percentage of available capacity.

Leasing programs can be managed internally or through contractors. To further broadband public policy goals, pricing for assets can be developed to encourage investment in unserved areas or credits can be given following private investment in such areas.

An ISP does not necessarily require a large number of middle-mile fiber strands to enable it to serve customers in a new area. For this reason, leasing excess capacity on an existing public network—even where there may only be a dozen or so spare fibers—is frequently one of the most feasible, effective steps a community can take to help a broadband deployer.

Similarly, a locality can lease conduit and provide considerable capacity for a network provider (which would install its own fiber in the conduit). For example, a 3-inch conduit can be physically segmented into three parts by installing innerducts (basically a tube within the tube), each of which can carry a cable with hundreds of strands of fiber.

Conduit can be made available to an ISP by granting access at a designated manhole or in a public building. The service provider or the locality can be responsible for the maintenance of the conduit.

As with fiber, a conduit system with community-wide continuity can provide an immediate, cost-effective way to reach throughout the locality, even if a partner's construction is starting in another part of the locality. Also, like fiber, conduit is more valuable if it helps avoid expensive construction across a major road or bridge, or in another costly or difficult-to-build area.

One advantage of leasing conduit, relative to fiber, is that it affords the locality more separation from the operations of the ISPs

that might use that infrastructure. Once the locality assigns a conduit and access points, it coordinates with the ISP less frequently for maintenance or repair than it would with a fiber lease.

However, conduit leases also pose disadvantages relative to leasing fiber. One is that conduit and conduit banks are less able to be segmented and therefore provide less flexibility than fiber. A fiber cable has dozens and potentially hundreds of fiber strands, any of which can be used by the locality, leased, or kept in reserve. In contrast, there are rarely more than a few conduits in a route (sometimes only one) and only a few possible segmentations of each conduit—so it is easier to run out of conduit over a given route.

The conduit strategy has been used effectively by the City of Mesa, Arizona, which pioneered underground communications conduit infrastructure in the 1990s. The city's joint trenching projects enabled construction of conduit in the least disruptive manner and offered low-cost construction opportunities for commercial providers and businesses. The city also capitalized on every opportunity to add new conduit; it evaluated the feasibility of construction cost-sharing for all underground trenching and boring opportunities, such as roadway widening, gas or utility pipeline installation, and commercial fiber optic construction (such "dig-once" strategies are discussed in detail below). As a result, the city cost-effectively built robust conduit rings in key parts of the city—then made the conduit available to private parties.

Leasing facility space

Network providers require secure, accessible, and suitable spaces for their electronic equipment. Ideally, these spaces should be evenly geographically distributed through a service area. Availability of secure space relatively near customers' homes and businesses enables greater performance and variety of service—and offers the provider more flexibility to cost-effectively build or upgrade its network. For these reasons, local governments that lease such space (or create a mechanism for predictably and cost-effectively obtaining space) can reduce providers' deployment costs and enable new technology benefits.

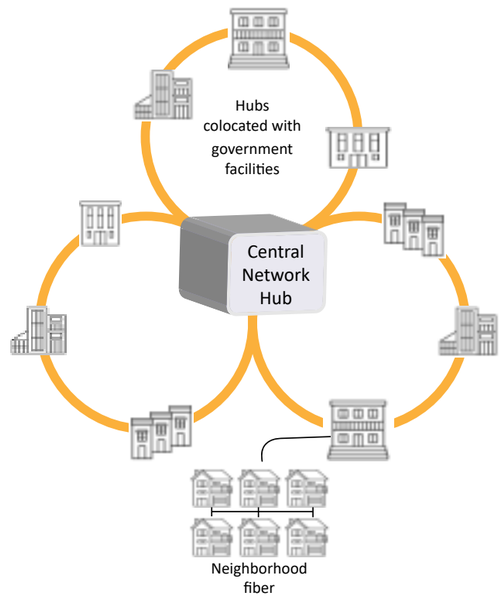
Local government-owned buildings and their adjacent land can be logical locations for communications infrastructure. Such buildings include public safety buildings, schools, and libraries—all of which tend to be located in neighborhoods throughout a community, in a geographically even manner.

Localities can inventory their infrastructure to determine where space and access may be available for use by broadband providers, and then make this information available to private deployers. In addition, in planning areas of new development, localities can plan in light of the need for suitable locations in or near public buildings where a provider can locate equipment, in the same way it might plan for power transformers or water or sewer locations.

In an optimal scenario, the locality can identify and lease secure, accessible space for the hub locations in government facilities (primarily government buildings, public safety facilities, public housing, libraries, and schools). In some scenarios, the locality may also be able to provide rooftop access for wireless antennas that a provider can use to extend wireless internet service to customers living where fiber cannot be cost-effectively built.

The benefits to the new broadband provider can be significant. First, if it is able to collocate its central hub facility or data center with a hardened government facility such as an emergency communications

Figure 1: Sample scenario for government-provided facilities

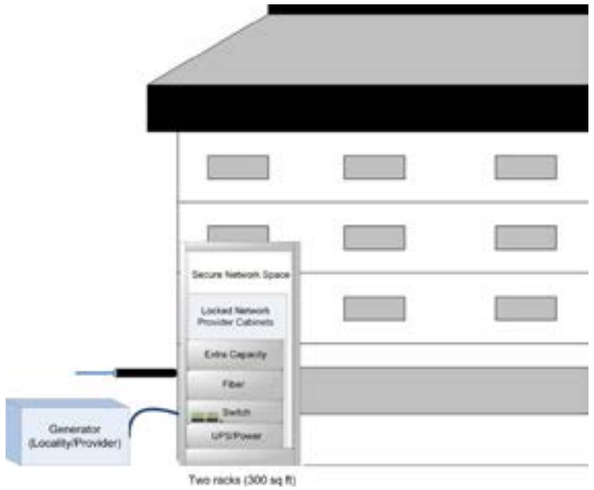


center, the provider has the benefits of a secure facility; backup generator and battery power; multiple utility entry/exit points; and proximity to external networks.

To activate a hub facility that is collocated with a government facility, the provider would need only to place racks, upgrade and expand power and cable distribution, and purchase the network-specific equipment. A hub facility can house electronics, management and content servers, and the network's interconnection with external backbone networks (see Figure 1). It requires 1,000 to 3,000 square feet, depending on the system size and services provided.

Second, the new provider also benefits if it can lease space in public buildings to serve as remote hub locations. In each of these, a smaller amount of space is necessary (see Figure 2), ideally collocated with the local government facility's network room or telecommunications closet. The service provider can install local switching and routing equipment capable of providing any speed service.

Figure 2: Illustration of private provider use of government buildings



The locality also benefits from this leasing arrangement: speeding new network deployment; maximizing use of government facilities that are optimized for such benefits as backup power and security; and potentially realizing lease revenues.

There exist operational benefits for the local government, too: because the network provider's hub infrastructure is present in many major government facilities, the locality can inexpensively connect individual buildings to the network and can locate its servers and data on the provider's network (i.e., "on-net"). As a result, access to public buildings can be a boon to providers.

Absent access to public buildings, providers may encounter difficulty obtaining permission to install generators or may not be able to secure appropriate in-building space at all.

Leasing real estate

Where public buildings are not available, a locality might also lease land suitable for a provider to construct a standalone hub facility. This would achieve the same ends as leasing space in an existing facility—and could even make access easier for the ISP.

In the absence of publicly owned space for lease, a new provider would need to lease indoor space from private landlords or build huts on leased private land. This can be more challenging than leasing public property: Premium space, well located, must be found and leased or purchased in the private marketplace. The network provider needs also to install generators, backup power, racks, interconnection with external backbone networks, core electronics, management and content servers, and staff offices.

Action: Trading or swapping access to public assets for access to private infrastructure

As a means of making public assets available where leasing is not feasible, consider how in-kind payment could make the locality's assets accessible to broadband deployers while advancing public goals. Trades or swaps for fiber, conduit, or real estate could be considered as alternatives to monetary payments.

A trading strategy would allow providers to use the locality's conduit or fiber in exchange for the providers allowing the locality to use a negotiated amount of conduit or fiber from the provider's network in areas where needs facilities for its own internal use. Trading between entities does not necessarily have to entail conduit or fiber, though these may be the most common form of trade. Access to other local government facilities, such as hub sites, could also be explored as trade opportunities.

An asset swapping or trading strategy can enable the efficiencies of a multi-use infrastructure environment and effectively multiply the impact of every mile that the locality constructs, because excess capacity in government-constructed areas can be traded for capacity that other providers have constructed, or that they will construct in the future. Security and control issues can be managed through contract terms and robust enforcement, based on engineering smart practices and industry standards.

Considerations

1. May require an enabling local ordinance
2. Benefits from the development of a broadband office, broadband strategic plan, public asset portfolio, and public asset lease program

Action: Building new assets where feasible

To the extent possible, localities should consider constructing fiber and conduit where it anticipates a need for capacity, including in conjunction with other planned capital improvements in the rights-of-way. By taking advantage of these opportunities, a locality can create over time an asset that can support the local government's internal needs and the ability of broadband deployers to serve the community.

Building middle-mile fiber

Excess fiber strands in a local network can help in establishing a network backbone. If the locality's fiber covers the key parts of the community, it can provide an immediate way to establish a point of presence in those key areas. A middle-mile model provides fiber in a backbone configuration, instead of comprehensively on every street to every home and business. A network provider will need middle-mile connectivity from the internet (that is, the public network backbone) to its key network facilities, and to connect its network to new service areas. The network provider then constructs "last-mile" fiber to homes and businesses—or, in some cases, provides wireless last-mile services. The network provider can access the fiber at outdoor enclosures (see Figure 3) or locate its equipment in public buildings (see Figure 4).

Figure 3: Transition between government and provider fiber at outdoor enclosure

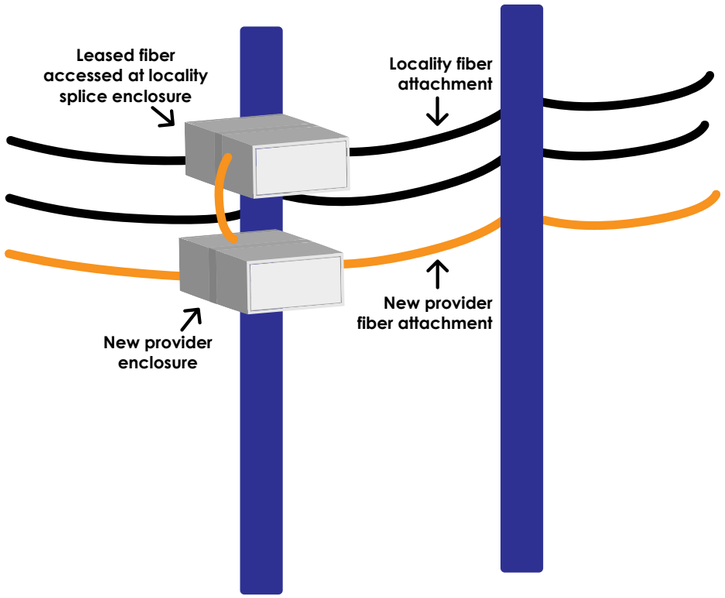
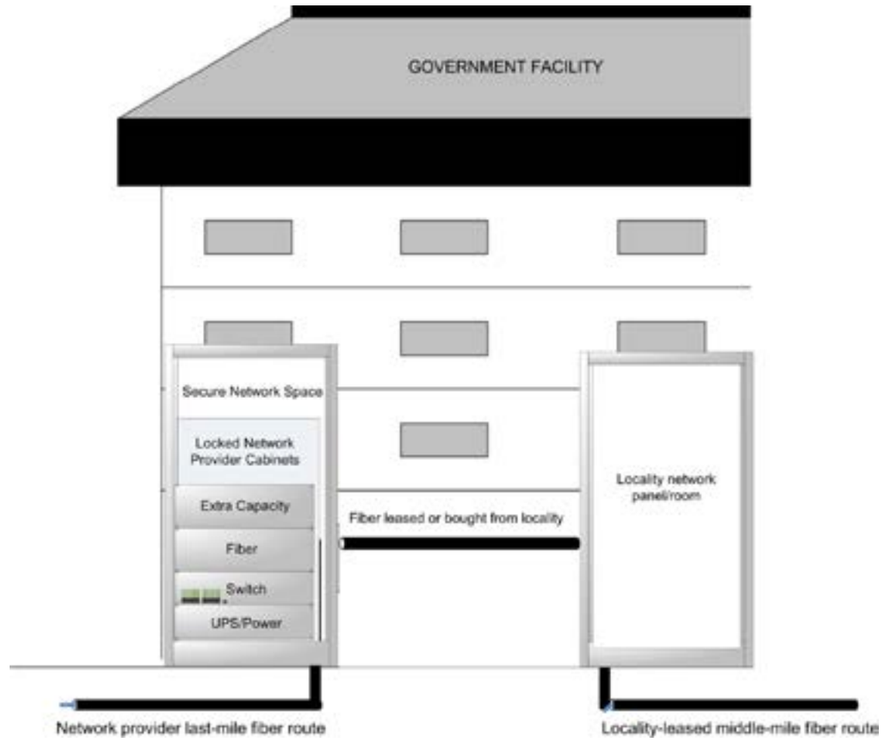


Figure 4: Transition between government and provider fiber inside government facility



If a community is building new fiber, it could consider installing a higher count than would be justified by its immediate needs in order to ensure there is capacity for growth. For example, the relatively low incremental cost of additional fiber in a cable may justify constructing a 288-count fiber cable instead of a 144-count cable in some cases.

This model has been extensively used in hundreds of communities in Sweden—most notably in Stockholm, where the city built extensive fiber over 15 years to most of its multi-dwelling buildings and made that fiber available to the private sector—substantially reducing the cost to private sector competitors of providing service in that market.

Building conduit

Conduit exists in a wide range of sizes, deployment scenarios, and topologies. Localities install conduit for a wide range of connectivity purposes, including:

- Community-wide communications
- Power
- Traffic signals (both from the signal to the cabinet, and from the cabinet to the communications network)
- Antennas and sensors (traffic, SCADA)
- CCTV cameras

Conduit is also installed to interconnect buildings (e.g., in a campus environment) and to provide capacity alongside public infrastructure, such as roads and canals.

The ideal conduit for communications networks has the following characteristics:

- Continuity over a long distance
- Sufficient size (diameter)
- Proximity to locations of interest
- Handholes or manholes at regular intervals
- Empty, or segmented with spare innerduct
- Unobstructed
- Sealed
- Separated from power
- Accessible
- Accurately and completely documented

Smart practice 2B: Creating conditions that make deployment of private assets more likely

Action: Requiring conduit installation in new developments and during major renovations

Providing broadband services to homes and businesses requires extension of high-speed networking infrastructure to and within the premises. In apartment buildings and multi-tenant office buildings, this requires extension of fiber optic cables from the right-of-way to a central telecommunications distribution point in the building, and from there to individual units. Lack of an affordable cable pathway from the right-of-way or to an apartment or office unit increases the cost of serving potential customers in a large building—and constructing a pathway during other construction or renovation can be done at a small percentage of the cost of retrofitting later.

For these reasons, a government can improve services to its residents and businesses if it requires by code—or creates an incentive for developers to build—additional pathways from the public rights-of-way to a demarcation point in apartment and office buildings. Furthermore, it can require standards-compliant cabling or cable pathways inside new construction or major renovations to cost-effectively connect each unit.

Case Studies:

The City of Brentwood issued an ordinance requiring developers to install two conduits dedicated to the City with new developments

The City of Gonzales requires all excavators to install conduit

A City of Santa Cruz ordinance requires excavators to include provisions for the installation of telecommunications cable, conduit, and related equipment

This approach effectively lays the foundation for last-mile broadband deployment by reducing the cost of construction. By extension, it may reduce future public investment, such as grant funding, which might otherwise be needed to incentivize broadband buildout in unserved and underserved areas.

Considerations

1. Can be required by code or encouraged by incentives to developers
2. Requires standards-compliant cabling or cable pathways inside new construction or major renovations to cost-effectively connect each unit
3. Local decision needed as to whether to mandate or incentivize buildout
4. Local decision needed as to whether to support conduit installation with new developments through public-private partnerships and/or require it through a statute

Ensuring the availability of conduit from the street to the building

One significant factor for deployment by a new network provider is the physical entry into buildings. Ensuring the availability of spare conduit into buildings can reduce installation time, risk, and cost for new service providers.

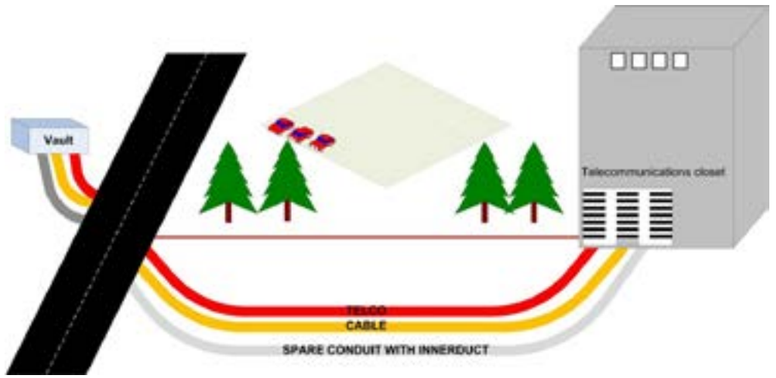
Developers and builders are already accustomed to providing pathways for telephone, power, and cable TV from the property line to a room designated for utility services within the building. Typical practice for many developers is to coordinate with incumbent ISPs at the time of construction or renovation. The developer installs conduit from the room location to the exterior of the building, typically either encased in the slab or under floors, to and through the exterior wall. The developer then trenches conduit to the property line, where it is properly marked so the various utilities can determine which conduit is for their service.

Although the conduit requirements will vary by the size of the building, a typical approach might be the installation of two 4-inch conduits for the phone and cable companies, and up to three 4-inch conduits for the electric utility. Conduit counts should reflect, to the extent feasible, anticipated future needs for fiber capacity.
The developer's incremental cost is minimal to add an additional 4-inch conduit for fiber optic cable in the same trench as the other utilities' conduit (see Figure 5). To make the conduit even more valuable, an innerduct can be installed during construction to subdivide the conduit into cells to create spare capacity.

In contrast, the cost for new construction of the same route might be up to five times as much if a network provider needs to create a new entry path that is not coordinated with initial construction. The higher cost is realistic if the right-of-way is on the opposite side of a major road, if the provider needs to cross under a parking lot or driveway, and if restoration (both in the outdoors and the building) is sensitive and expensive.

Constructing a new route into a building may also involve days or weeks of delay for permitting, engineering, design, utility location, and coordination with the building owner. These are delays that would be avoided if conduit already exists when a provider is ready to begin connecting customers.

Figure 5: Example of requirement for developers to install conduit from public right-of-way to building



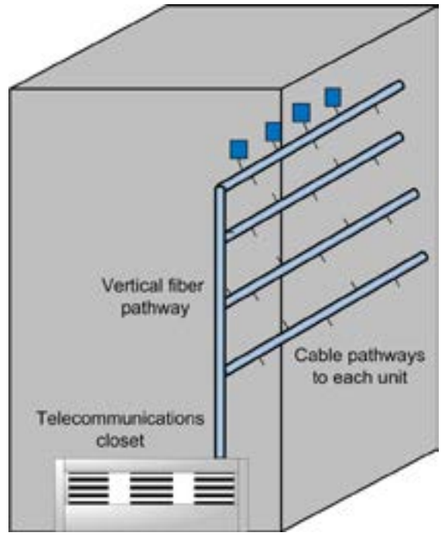
Ensuring the installation of in-building pathways and cabling

Indoor cabling is one of the largest costs and areas of uncertainty for a network service provider. This problem is especially pronounced in apartment buildings and office buildings, where the provider must cable long distances to reach individual customers.

A locality can reduce costs and speed deployment by requiring in its code that developers or building owners place cable pathways or standardized cabling to each unit as part of construction or renovations (see Figure 6). The pathways need to meet industry standards (such as TIA/ANSI) so that bend radius, distances, clearances, and locations of termination points are correct for the potential range of technologies that might be installed. Also, there should be secure telecommunications closets of appropriate size and number, based on the number of units and the distances between the units and risers.

Indoor fiber optic cabling in an apartment building costs from $300 to $750 per unit, depending on the design of the building, the availability of false ceilings and cable pathways, the existence of wiring closets, and permission to attach moldings or other materials. The cost per unit can be reduced by half if there is sufficient capacity for the new fiber in the

Figure 6: Example of requirement for developers to install cable pathways to apartments or offices



horizontal riser, and there is conduit, duct, or raceway from the riser to individual units. Pricing and challenges are similar in multi-tenant office buildings. For both apartments and offices, each building is different and requires new strategies.

Another strategy is to require developers or building owners to install fiber optic or other broadband cable as part of new construction or renovations. As with installing conduit, this strategy reduces costs by eliminating the need for a new provider to pull cables through a raceway or conduit—but it is better suited to communities where broadband providers are already connecting customers according to a specific standard (e.g., single-mode fiber pair to each unit). Given the diversity of potential service approaches (e.g., non-fiber technologies to the unit), installing fiber to every unit may lead to a significant stranded investment if no fiber provider serves the building, or if the service provider insists on using another type of cabling to the unit.

Action: Facilitating aerial construction by encouraging pole owners to facilitate make-ready

A critical item for anyone building new broadband facilities is access to utility poles,[6] which allows for aerial construction that is much less costly than underground construction. However, many existing utility poles either do not have sufficient space for attachment of new communications providers or have existing communications providers attached in an inefficient manner, requiring those attachments to be moved to accommodate the new provider.

Moving existing utilities as part of the “make-ready” process is costly and time-consuming, requiring weeks or months to coordinate providers and perform the move. Furthermore, the inefficient make-ready process has to be repeated each time a new entity wants to attach.

6 Access to poles is the subject of a California Public Utilities Commission proceeding as of the wiring of this document. “Order Instituting Rulemaking into Access by Competitive Communications Providers to California Utility Poles and Conduit, Consistent with the Commission’s Safety Regulations,” CPUC, R.17-06-028, Proceeding Details (ca.gov).

Permitting departments may be able to improve the availability of broadband by encouraging pole owners to partner with deployers to facilitate make-ready.[7] Localities have relationships with the pole owners that frequently allow them some influence. Localities can use that influence on behalf of their broadband goals by encouraging pole owners to facilitate the process of the new broadband provider attaching to the poles.

Some broadband advocates believe that new network buildout can be eased through state or local requirements that new entrants be allowed to attach to privately owned poles. Indeed, some cities require shared use of facilities in the localities' rights-of-way as a function of their authority to promote the health and welfare of citizens and their authority to adopt reasonable requirements for right-of-way occupants to minimize disruption and hazards. From a technical standpoint, such shared access opportunities would assist both localities and broadband deployers in cost-effectively and quickly constructing new broadband facilities.

Pole attachment by a new broadband builder can be expedited if the pole owner:

1. Has a standard, predictable process for attachment
2. Commits to a schedule for each part of the process
3. Provides reasonable and consistent pricing for make-ready
4. Consolidates its own infrastructure on the poles and removes unused attachments
5. Requires existing attachers to consolidate attachments and remove unused attachments
6. Allows use of extension arms or overlash to increase capacity

There exist considerable benefits to quick and efficient make-ready or easily available pole space. A service provider can enter a community and begin constructing its infrastructure in a matter of weeks instead of months. The provider can focus its construction purely on meeting customer need and demand, rather than being heavily biased toward areas of easier construction. It can also potentially double its speed of deployment, especially at the outset of construction. Finally, efficient make-ready can reduce costs by as much as 50 to 75 percent, according to engineers working on fiber construction in California.

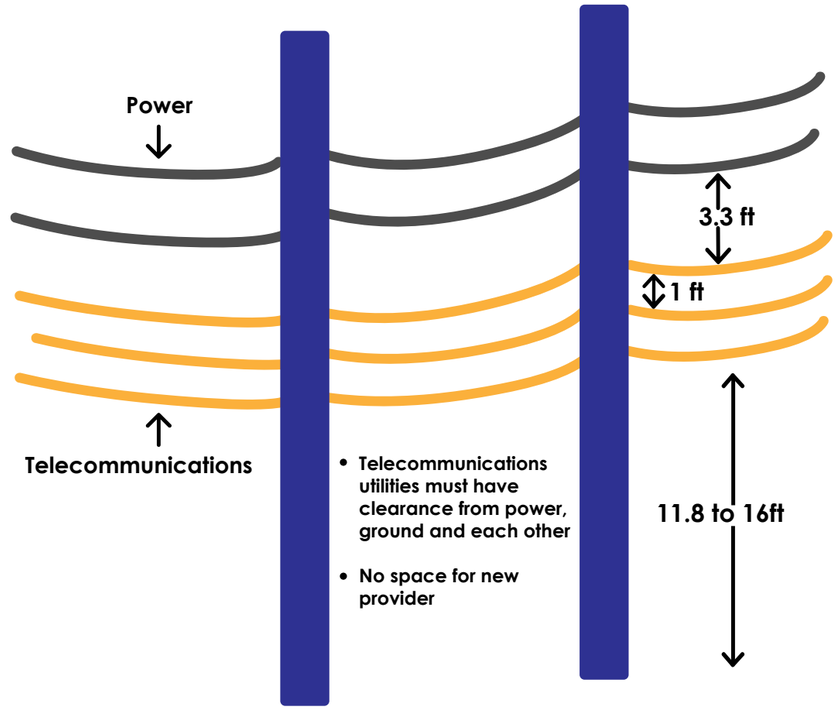
The following sections suggest strategies and smart practices that can help lower per pole costs.

7 Pole owners control the timetable, cost, and procedures of attaching to their poles. In most American communities, the locality does not own the poles and has little or no control over those poles; rather, the poles are owned by electric utilities and telephone companies that do not answer to the locality.

Facilitating make-ready to enhance pole access

"Make-ready" is an essential step in being able to attach new cables to existing poles. The term refers to the process of preparing utility poles for the attachment of an additional utility in compliance with electrical code. In most cases, this means that existing utilities must be moved to accommodate a new entrant with the required clearance from electrical lines and the ground, and clearance between the communications utilities. If there is insufficient space to add a new attachment, a pole may need to be replaced, usually at the expense of the new entrant.[8] Figure 7 illustrates a pole with required clearances between power, telecommunications utilities, and the ground.

Figure 7: Basic pole diagram for make-ready



8 In some cases where the pole owner requires replacement of the entire pole, costs can be so excessive that the network deployer chooses to change the design to underground or reroute the fiber rather than pay for replacing the pole.

The make-ready process typically starts with the entity seeking attachment (i.e., the new service provider) applying for and obtaining an agreement to attach to the poles, and meeting with the staff of the pole-owning utility. This establishes an understanding of the timeline, the process, the fees, and the likely speed at which the necessary work will be completed.

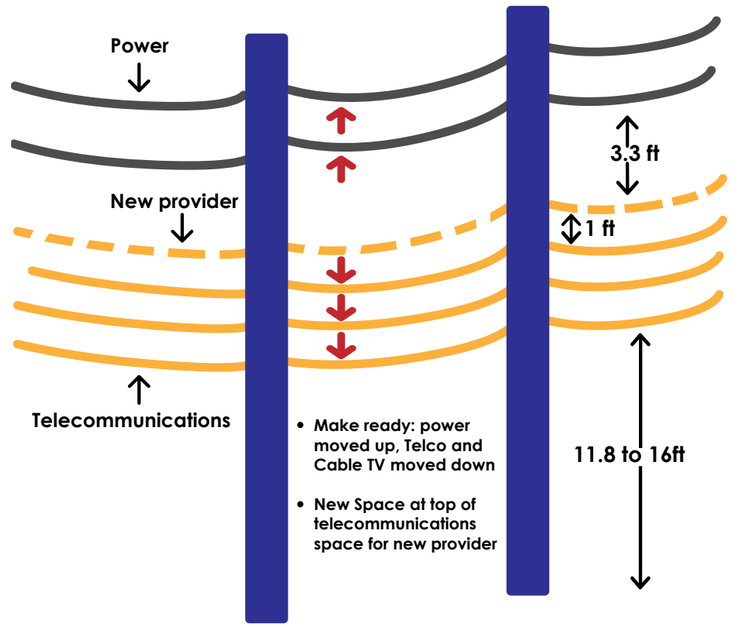
At the same general time, the new provider works on network design and routing. Sometimes, in early stages of network design, the provider may encounter "show-stopper" problems—these include exorbitant pricing for make-ready, a very slow or uncertain schedule, or, in the worst case, a refusal to allow attachment.

It is at this stage that local government intervention can be critical—because the problem is not technical, it is a matter of the pole owner's business decisions. Even though the locality is not typically a direct regulator of the pole owner, the relationship with the local government is usually important to the pole owner, and the locality can have significant influence—either directly or through the state (because regulation of the pole owner is often at the state level). Local influence may encourage the pole owner to work cooperatively with the new entity or may lead to a creative resolution of the problem—such as a strategy to share costs to augment the utility's staff in the event that the utility is burdened by the new entrant's needs.

Assuming the show-stopper problems are addressed, the new entrant then performs a survey of the poles. This process will differ in complexity depending on such local circumstances as the age of the poles, the density of the area, and other matters. To facilitate the process, new providers sometimes seek out an engineer who has worked with this utility—who knows both the formal and informal rules of the pole owner and the geographic area, and who has relationships with the appropriate individuals at the pole-owning entity. The locality can often help a new network entrant understand the unwritten customs and practices in the area and identify individuals who have been helpful in the past.

The engineer identifies the types of moves that need to happen on each pole. Figure 8 illustrates a typical set of moves required to make room for a new attachment.

Figure 8: Example of make-ready requirement for new provider



Make-ready timing is another hurdle for new entrants. While the make-ready process differs from community to community, it typically includes a multiparty walk-out of the route with representatives of all utilities on the poles. The walk-out may take weeks or months to schedule. Because some pole owners may not be incented to expedite a competitor's construction, the locality can encourage all parties to expedite their work, both for the walk-out and the moves. (Make-ready timing may be impacted by state or federal requirements and other terms of access, so these issues may be addressed through existing regulations.)

The actual make-ready work may also take weeks or months to complete. The individual attachers sometimes move their own facilities, or the pole owner can have a third party perform the work and pass the costs on to each attacher.

Federal, state, and local regulators have been adopting one-touch make ready rules.[9] In general, these focus on "simple" moves, which do not involve proximity to power or moving power infrastructure. In many parts of California, pole owners and attachees have 45 days to review a proposal for simple make-ready, in which the pole owner or attachee can respond with an alternative approach. If there is no response within 45 days, the proposed move is deemed acceptable, and the attacher can carry out the move.

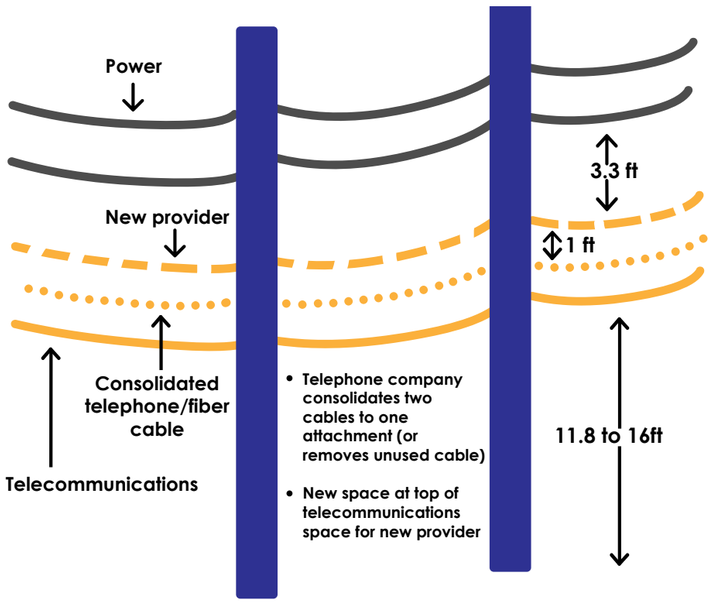
9 See, for example: "One-Touch-Make-Ready Rules for Pole Attachments Effective May 20, 2019," Federal Communications Commission, DA-19-445, https://www.fcc.gov/document/one-touch-make-ready-rules-pole-attachments-effective-may-20-2019.

Eliminating the need for make-ready to speed pole access

Even more efficiency results if additional space is already available on the pole. There are a number of relatively simple strategies that can enable this: first, "housekeeping" and consolidation of existing attachments to make space for new entrants; second, reservation of space for new entrants; third, allowing new attachers to use extension arms that create new room on the pole; and fourth, allowing and requiring "overlash" of new cables on existing attachments so as to efficiently use existing space.

First, pole owners can make space by undertaking "housekeeping" of its own infrastructure—for example, by consolidating power conductors, removing unused telephone cables, and consolidating telephone and fiber cables to the same attachment (see Figure 9). The pole owner can require other attachers to do the same or can create incentives for them to do so; for example, it can structure attachment fees to encourage efficient use of space and consolidation.

Figure 9: Example of make-ready involving cable consolidation



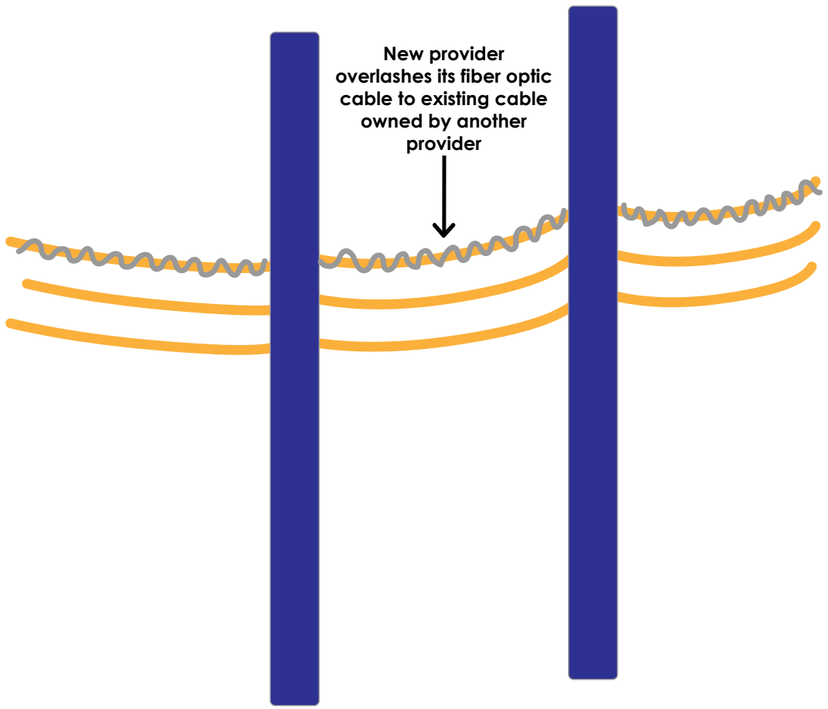
Second, pole owners can designate a space of at least 12 vertical inches, intended specifically for attachment by new service providers. If poles are full and space does not exist, this policy can be implemented when poles are replaced, or as part of regular maintenance. In many older neighborhoods, this will require the pole owner to install taller poles.

Figure 10: Example of extension arm on pole, enabling horizontal expansion of capacity

Third, new entrant construction can be greatly facilitated if pole owners allow use of extension arms to increase capacity in the communications space. Because the National Electrical Safety Code (NESC) requirements for clearance allow for horizontal as well as vertical clearance, one way to increase communications capacity on a utility pole is to install horizontal extension arms from the pole and install cables on the arm (see Figure 10). Extension arms are about 2 feet to 5 feet in length and are bolted to the utility pole. They are strong enough to support communications cables and are commonly used in congested environments. Not all pole owners allow extension arms despite their compliance with NESC requirements and their widespread successful use.

Fourth, make-ready can also be avoided if new providers are able to "overlash" their cables to existing cables on the utility poles (see Figure 11). Overlash is significantly less costly than creating a new attachment on the poles. It also does not typically require make-ready, so it entails significantly less time and coordination with the pole owner. Overlashing new cable to existing aerial strand costs on average about $15,000 to $60,000 per mile (materials and labor) depending on the fiber count. In comparison, new construction can cost as much as hundreds of thousands of dollars per mile depending on labor costs and the complexity of the build.[10]

Figure 11: New provider overlashes new cable to existing cable



10 Management of overlashing can be complex and the pole owners may not look favorably upon it. The integrity of the poles and the attached cables requires a clear model of responsibility for the attachment. These issues are, however, manageable and, in our experience, a number of models exist for this allocation of responsibility. In one model, which is most consistent with current attachment practices, the first provider to attach in this space is responsible to the pole owner for the attachment, including fees and compliance with loading, clearance rules, and maintenance; entities that overlash to the first cables are sub-lessors. In another model, a pro rata fee model is created in advance by the pole owner or the government managing the rights-of-way, and the overlashing entities coordinate their work and maintenance with the pole owner, or a joint pole authority.

Smart practice 2C: Encouraging deployment of public and private assets

Action: Developing a "Build Once" policy

To the extent that such approaches align with a localities' needs and resources, there exist strategies for identifying opportunities to invest in conduit and fiber infrastructure assets to meet a local government's own operational requirements while potentially facilitating broadband expansion goals by enabling private sector use of excess capacity.

Importantly, this "Build Once" approach is distinct from the "Dig Once" policies discussed later; Build Once focuses on the locality planning the construction of its own communications infrastructure, while Dig Once types of policies seek to enable the locality to obtain conduit or fiber capacity from entities building in the rights-of-way.

The primary purpose of a Build Once approach is to support the locality's internal communications and technology requirements. But with foresight and planning, the Build Once approach can expand the benefit of those communications infrastructure projects, and increase the return on the locality's investment, by adding capacity at low incremental cost that can then serve a range of other purposes and support external stakeholder requirements.

A locality's investment in new infrastructure in its rights-of- could connect last-mile providers to unserved markets more reliably and cost-effectively; support expansion of existing middle-mile networks; accommodate connectivity requirements for other State agencies; and support wireless providers' expansion or improvement of mobile services.

Action: Developing a "Dig Once" policy to promote conduit and fiber construction

Many localities have adopted some form of "dig-once" policy that opens streets and rights-of-way to utility construction when related projects are underway. Such policies protect roads and sidewalks and minimize traffic and other disruptions related to utility construction—but also create a more uniform and efficient means of constructing network infrastructure by giving multiple entities, including the locality itself, the opportunity to place fiber or conduit inexpensively.

"Dig Once" policies open rights-of-way to utility construction when related projects are underway. Dig Once policies can reduce construction costs, reduce crowding in the rights-of-way, and minimize traffic and other disruptions. When it works for a given locality, Dig Once can incentivize infrastructure growth and provide a uniform and efficient means of constructing network infrastructure.

To build or expand a fiber footprint, localities can place conduit during all capital improvement projects to dramatically lower the cost of network construction.[11] Most communities are well situated to install conduit any time a capital improvement project requires breaking ground in the public right-of-way. To maximize the benefit of this strategy, localities can maintain awareness of opportunities to install or obtain fiber and conduit through activities in the rights-of-way and discover and pursue these opportunities by way of explicit, formal procedures.

Localities can also adopt guidelines addressing conduit construction so that they can quickly work with a potential partner to add conduit to a project and integrate with existing community conduit. Standards should be prescriptive, but there should be sufficient flexibility to modify them if impractical or unsuitable in certain circumstances. These documents can serve as references in developing, for instance, site plan conditions for utility- or developer-provided infrastructure.

11 See "Brief Engineering Assessment: Efficiencies available through simultaneous construction and co-location of communications conduit and fiber," White Paper, CTC, 2009. http://www.ctcnet.us/CoordinatedConduitConstruction.pdf

New development areas, for example, offer important fiber and conduit placement opportunities. As the roads are developed, conduit can be installed and documented, enabling the locality to place fiber when needed at very low cost relative to the cost of retrofitting those roads for fiber infrastructure. Conduit burial during construction could enable the community to lease fiber to private providers or deploy services itself, as the need arises. The incremental cost of the conduit during construction is negligible relative to the cost of building fiber later, after the development is complete.

The City of Lawrence, Kansas, for example, has used this strategy for a number of years. As the opportunities have arisen, the city has expanded its network infrastructure by installing fiber or conduit to support important internal needs, or in concert with a broadband deployer. In Lawrence, the IT department, city engineer, traffic supervisor, and public works department have demonstrated, through collaborative effort and cooperation, the potential to realize efficiencies by placing conduit during other projects. The city engineer and IT department have developed a well-functioning process to take advantage of capital improvement projects in the rights-of-way to place conduit, and the city engineer reports that the incremental cost of the conduit placement has been negligible relative to the broader cost of the capital improvement project. Localities can also watch for opportunities to install or obtain fiber and conduit through activities in the rights-of-way and discover and pursue these opportunities by way of explicit, formal procedures or ordinance. These opportunities may include grant-funded initiatives for particular departments; road construction; road widening; undergrounding of utilities; and construction of new and existing utility infrastructure (electric, telephone, cable, water, sewer).

Localities can maintain contact with local utilities and service providers to be aware of their upcoming plans. Likewise, entities performing construction in the rights-of-way can provide sufficient information in the permitting process for the locality to judge if a co-location opportunity is available, and provide sufficient time for the locality to coordinate adding conduit and vaults as part of the construction.

To ensure that all entities have the opportunity to place conduit or fiber during other entities' construction, localities can put in place processes

to alert itself as to the opportunities. It can set up capture points to bring new construction to the attention of the appropriate party—including through requests for permitting antennas, permits for rights-of-way construction, discussions in trade or business journals, coordination with other governments in the region, and discussions with regional economic development entities.

The potential benefits of this coordinated approach to conduit and fiber installation accrues not only to public agencies but also to private providers. A coordinated fiber network design can provide capacity for dozens of separate service providers. This strategy has the benefit of maximizing long-term value and minimizing the potential for future disruption.

One approach is to construct a high-capacity conduit bank connected to manholes at regular intervals according to a standardized design. The primary manholes in turn would connect to lower-capacity conduit connected to residential or business service drops or to wireless infrastructure. Small manholes or handholes can be managed by particular service providers for their proprietary access and service to particular customers.

Considerations

1. Developing criteria for Dig Once opportunities (i.e., project length and location requirements)
2. Identifying priority areas for Dig Once policies (e.g., road projects)
3. Developing a notification system to coordinate with excavators
4. Recording as-built information after construction is complete
5. Enabling all qualified parties, including government agencies, to take advantage of Dig Once opportunities

Enabling all parties to take advantage of "Dig Once" opportunities

Once a provider initiates construction in an area covered by a dig-once plan, all providers and the locality should be made aware so that they can be ready to take advantage of the opportunity. Each individual provider can place its infrastructure while the "trench" is open (or use directional boring techniques to place the conduit), and the locality can build infrastructure for future growth (or require that another provider do so).

Providers can reduce both costs and the use of underground space by placing conduit as part of the same construction project. By placing their conduit at the same time, the providers can also reduce the instances of one conduit "wrapping around" another one—which occurs when a bore operator avoids existing conduit that is not readily seen. This reduces the complexity of repairs and reduces the risk of damaging infrastructure.

Once construction is complete, a multi-year moratorium along the path reduces disruption and wear-and-tear to the rights-of-way—and simultaneously incenting private carriers to place conduit efficiently and promptly while the road is open.

This notification strategy has been successful in the City of Hong Kong, where private providers that open a road or sidewalk to build infrastructure are required to notify all other fixed service providers, including their competitors. Those entities are then provided with a set time interval in which they can place their own underground infrastructure. Once construction is complete, a multi-year moratorium along the path reduces disruption and wear-and-tear to the rights-of-way—and simultaneously incenting private carriers to place conduit efficiently and promptly while the road is open.

Placing conduit bank in congested areas

In highly congested and valuable areas, localities can construct uniform conduit bank with sufficient capacity for all current and future providers. Uniform conduit banks use space more efficiently because conduit can be more tightly packed together and share manholes and handholes. Such banks can be maintained and managed by a single entity, whether the locality or a designated contractor.

Banks of conduits constructed simultaneously, or large conduits segmented with innerduct, provide multiple pathways for the installation of multiple fiber optic cables located in close proximity, as well as the ability to remove, add, or replace fiber optic cables without disturbing neighboring cables. Providers can select different colors for easier identification and repair. In contrast, rights-of-way that are crowded with conduit offer limited space and more costly options for adding infrastructure.

3. Strategies for creating equitable access to information

Smart practices:

A. Making public GIS datasets available where possible

B. Documenting public fiber assets

C. Documenting public conduit assets

D. Coordinating telecommunications infrastructure mapping across permitting agencies

Smart practices for sharing information (such as detailed maps) relevant to broadband planning among a wide range of potential deployers

Local governments routinely collect and maintain maps, permitting data, and other information related to their rights-of-way and other infrastructure in their communities. Some larger cities and counties collect extensive data and share it on open data portals, accessible to anyone; smaller communities tend not to collect as much information—and not to have the resources to make it publicly available.

The strategies presented here focus on gathering data that might help facilitate broadband planning and design—and making the data available to ISPs or other potential partners. (Local governments themselves also benefit from developing and maintaining detailed, accurate information about broadband-enabling infrastructure.)

These steps include documenting existing infrastructure and planning to capture details on future expansions. Examples include the location of existing fiber and conduit, the condition of that infrastructure, and how fiber strands are being used.

In each of these approaches, the locality would ensure that appropriate privacy and security standards are maintained.

Smart practice 3A: Making public GIS datasets available where possible

An organized government database of geographic information greatly increases efficiencies and reduces costs for the government itself and for the organizations with which it does business. Access to relevant data reduces the cost and time required to plan and build broadband infrastructure—whether by the locality itself or a broadband deployer. The California Public Utilities Commission developed and maintains the California Interactive Broadband Map[12] in part to achieve these same ends at a state level.

Geographic information systems (GIS) are advanced mapping systems with high-resolution detail. GIS databases can be accessed for a range of purposes—many never considered by the creators of the system or the individuals who entered particular resource information (e.g., the location of streetlights or characteristics of private property in the locality).

While local data are not necessarily collected for the primary purpose of facilitating broadband construction, the following data sets can be extremely helpful in that regard:

- Addresses
- Streets
- Rights-of-way and easements (local government, Caltrans, and others)
- Building footprints
- Streetlights
- Neighborhood boundaries
- Parcels
- Utility poles
- Overhead strand
- Conduit (both locality-owned and belonging to other utilities)
- Fiber (both locality-owned and belonging to other utilities)
- Manholes and handholes
- Zoning
- Existing underground utilities

12 California Interactive Broadband Map, https://www.broadbandmap.ca.gov/.

With this information, it becomes easier, faster, and cheaper to conduct the high-level planning phase of a large-scale broadband construction project in which the prospective builder examines options and determines what assets are needed to plan and to build.

This kind of detailed and transparent information can enable a prospective broadband provider to plan efficiently in a range of areas. First, the provider can learn what resources exist (such as space in the rights-of-way space, manholes, poles, and conduits) that are usable and leasable for the project and who to contact about leasing those resources. Second, the provider can develop more accurate forecasts of construction costs and schedules and identify in advance areas of risk and critical path items, such as easement access and bridge crossings. Third, the builder can create a large percentage of the outside plant design from the existing information, reducing the time and effort needed for fieldwork.

Incumbent broadband providers frequently are reluctant to add their data to such databases for business reasons. GIS systems enable the locality to protect particular layers of a map for internal use only, or limit access to authorized individuals and keep proprietary information from potential competitors.

Smart practice 3B: Documenting public fiber assets

Public fiber's utility is frequently only as good as the documentation that enables the locality (or a broadband deployer) to understand where and how it is built and maintained. Initiatives such as community fiber optic construction, utility improvements, and community development require high-quality documentation and GIS mapping as part of the initial and lifecycle budgets. For example, a public fiber network is a classic example of an asset that benefits from appropriate documentation from the outset, and loses reliability if it ages without that documentation.

Local government-owned fiber is often documented on paper maps, in computer-aided-design (CAD) drawings, and with ad-hoc spreadsheets. At first, when there are only a few routes and no real complexity, these techniques appear to suffice. However, after a few changes, re-routings, and additions, the de facto documentation is only in the memories of the fiber team. The result may be re-work, fiber damage, accidental service outages, wasted time and money, and lack in confidence in the community's own infrastructure.

Lack of documentation has led some communities to doubt their own fiber assets to the point that they decline to use it for public safety purposes because of concerns regarding failure rate and reliability. These same communities decline to lease their fiber because of concerns that they could not meet contract terms for managing it or for uptime. And they sometimes find that their fiber counts are insufficient to meet their needs because lack of documentation has led to over-leasing or use of inefficient electronics.

In order to create value, fiber documentation should indicate where the fiber is, whether it is aerial or underground, and where it is located spatially on a pole or underground. Effective documentation also includes conduit color, fiber count, pole locations, and location of asset points.

Figure 12: Comprehensive GIS mapping of fiber route

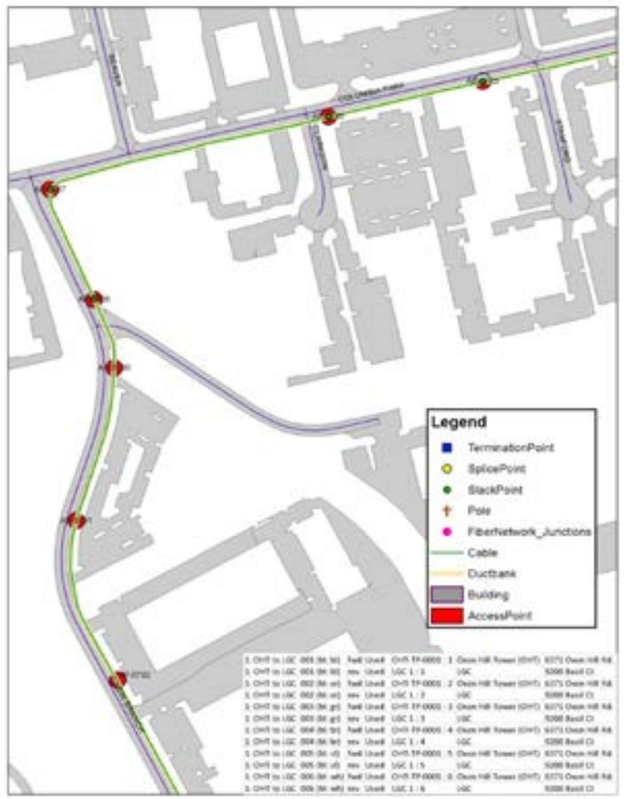


Figure 12 illustrates a sample GIS map of a fiber route, including physical fiber placement, termination points, splice points, poles, duct banks, access points, and the endpoints of each strand of fiber. Even more detailed information can be generated within the GIS system, including the path of a single strand of fiber through the entire network. GIS systems also offer localities the ability to determine the optimal fiber assignment and splicing for a particular route, and the ability to quickly generate "what-if" scenarios for future planning.

Considerations

1. Develop an in-house fiber management system or outsource the responsibility

Smart practice 3C: Documenting public conduit assets

Underground fiber optic conduit is a valuable asset, particularly where construction is costly or difficult, such as urban areas, bridge crossings, rail crossings, and key building entries.

Many localities have conduit available as part of telecommunications, traffic, or other utility efforts. These range from mature, communitywide networks with consistent design and substantial capacity, to scattered conduit near traffic cabinets.

Well-documented conduit, like well-documented fiber, requires effort and consistency, and needs to be regularly updated. Effective conduit documentation includes the path, size, location (vertical and horizontal), access points, and design specifications (bends, availability of pull strings, composition).

While some communities may have a regularly maintained, reliable inventory of their conduit and a clear assessment of its usefulness and value, others, as with fiber, have only scattered documentation. Conduit information might be stored on paper maps or standalone CAD files of individual site plans or traffic intersections, or may be on separate permit applications (which may not be retained over time).

Moreover, the conduit itself might be crushed, blocked, full, or otherwise inaccessible. Also, conduit built for one purpose (twisted-pair copper, power) might not be suitable for broadband. In the case of conduit built for copper, the bend radius might not support fiber cables. In the case of conduit built for power, there may not be sufficient clearance from power lines to safely use for fiber.

Sufficient documentation can enable localities to track and understand these issues and plan accordingly.

Smart practice 3D: Coordinating telecommunications infrastructure mapping across permitting agencies

Coordination of telecommunications mapping can support the broadband planning and deployment process through enhanced information availability on the part of public and private entities—and strategic planning among participating public entities.

The California Public Utilities Commission has taken a lead role in this regard at the state level by developing and maintaining the California Interactive Broadband Map.[13] At a local level, to the extent that multiple agencies or departments are involved in permitting processes, a concerted effort to identify and aggregate data and maps can have the same types of benefits. At the local level, too, coordinated mapping can create benefits for the permitting process itself.

Where it is feasible for a locality to coordinate its infrastructure mapping and record-keeping, the aggregated data can help simplify permit applications (for the applicants and the government reviewers) and permit record-keeping. Longer-term, maintaining a clearer record of the location of infrastructure in the right-of-way (including broadband and non-broadband-related underground installations) can enable the assessment of broadband infrastructure availability in the community. This, in turn, could enable the locality to identify areas of low broadband investment for strategic planning purposes.

Once it has a process for gathering and collating map data, a locality would have options for creating maps with various levels of access, depending on the user. For example, it could create:

- A public map that shows the location of jurisdiction-owned infrastructure
- A map that is only accessible by permit applicants that shows the location of pending and approved permits
- An internal map that shows more detailed information about each pending and approved permit application

Considerations

1. Local decision as to what entity will maintain the infrastructure map
2. How to encourage buy-in among participating public entities
3. Determining what level of detail is appropriate for public view
4. Incorporating the findings of the map into broadband strategic planning

13 California Interactive Broadband Map, https://www.broadbandmap.ca.gov/.

4. Approaches to undertaking these strategies

Local government leaders and their staffs are accustomed to long-term strategic planning around infrastructure investments to meet their residents' economic, social, public safety, and other needs. As with any initiative of this import, smart practices related to broadband deployment require analysis to ensure they are appropriate to a locality's own needs and requirements.

Smart practice 4A: Creating a cross-agency taskforce with executive leadership

Broadband planning at the local government level also requires strong executive leadership. A mayor, county executive, or similar leadership role will be a critical player in implementing these strategies—with collaboration and coordination among relevant agencies and departments, potentially including the development of a programmatic environmental impact report.

As an example, the Los Angeles County Department of Public Works and the Los Angeles County Internal Services Department, at the direction of the elected leadership of the County, are engaged in a comprehensive review effort to analyze and optimize a range of permitting and related processes.

Effective leadership will ensure that a locality's staff are aligned in their understanding of public policy goals and their focus on a given set of outcomes.

Smart practice 4B: Making broadband part of local government strategic planning and coordination

Action: Initiating collaborative big-picture planning

A local government permitting agency can be a catalyst among local and regional government agencies, ISPs, and unserved communities by facilitating discussion and information sharing regarding broadband deployment efforts. Consultation with critical stakeholders could include existing and potential new-entrant ISPs, as well as public and nonprofit entities that may want to meet the needs of their communities and stakeholders as last-mile broadband providers.

The City of San José, for example, facilitated regular weekly meetings between the broadband point of contact and ISPs, and quarterly meetings between telecommunications executives and departmental leaders. This regular feedback mechanism led to the development of permit application templates and other process efficiencies. The City better understood ISPs' concerns about permitting timelines—and the City had a platform for suggesting infrastructure builds that aligned with its digital equity initiatives.

Integrating broadband into a local government's overall strategic planning (whether as part of a broadband strategic plan or a more general planning approach) creates a platform for collaboration, process improvement, and investment. Such an approach can prioritize broadband as a policy goal, with implications for access to public and private resources.

Considerations

1. Frequency of meetings
2. Levels of interaction (high-level, strategic conversations between executives; tactical conversations between permitting staff and applicants)
3. How to coordinate mapping efforts
4. Whether to initiate one-on-one information sharing

Action: Building broadband into planning and staffing of all relevant agencies

Another strategy is to address organizational silos within the locality—separations between information technology, permitting, engineering, and utility departments, for example—and again require that local infrastructure be documented as part of upgrade and improvement projects and regular maintenance.

As with fiber, the entities and agencies managing conduit may be separated from broadband and network planning agencies by internal reporting structures, and there may need to be leadership intervention for these entities to share and collaborate.

Localities might consider developing processes and structures that formalize the roles of department leadership in broadband planning, and ensure that any broadband opportunity is identified, receives proper review, and is acted upon promptly. Similarly, localities that take this approach might establish a single point of contact and durable reporting and accountability structures that do not rely on successful working relationships and ad-hoc communications of existing staff.

Processes and structures will work best if they are mandated by the community's legislative body, and the process is widely understood as a means of getting more for the locality as a whole. To that end, a smart practice is to inform elected leaders and staff about progress or activity in broadband, which can create a positive feeling about the value of the process.

A strong coordination process has the following elements:

- A clear point of entry
- Applicability to small and large projects
- Review by expert individuals
- Consultation with all relevant departments
- Speed
- Accountability
- Transparency
- Support of local leaders

A successful identification, review, and action plan may have the following elements:

1. Relevant broadband opportunities—such as new public facilities, new opportunities involving telecommunications available through grants, new applications that intensively use public networks, new services to be offered through the community networks (for example, substantial upgrades to GIS), and new construction projects and build opportunities in the locality—must be submitted as soon as possible to a central clearinghouse, such as a help desk. In the case of build opportunities, a smart practice is for local government departments to inform the help desk as soon as they are aware of a service provider or developer. (Some construction projects considered "targets of opportunity," such as emergency repairs on utilities and co-location opportunities discovered close to the time of construction, must be acted on more quickly than others.)

2. The clearinghouse identifies items for technical review by a team representing the relevant departments (e.g., information technology, public safety, public works, facilities, transportation). Team members will be informed of the key facts, along with the urgency level of the review.

3. The clearinghouse identifies items for policy and legal review as needed and again forwards those to a team handling these issues.

4. On the due date of the review, the technical and policy/legal teams convene and present the review to project manager, who review the information, request supplementary information, and approve the completed analysis.

5. Project management submits the reviewed information to the appropriate decision-makers—the council, the manager, or department directors—for approval.

The end result of the process is a qualified technical review within a specified interval of time. There is accountability for the proposed initiative at each stage. The individuals who review the initiative provide written feedback, and decision-makers can see what was considered in the review and why.

Appendix:
Broadband strategies checklist

1. Strategies for enhancing permitting processes

Smart practice 1A: Developing and sharing information about relevant permitting and processes
- Action: Developing clear construction design standards and regularly updating the standards with industry and expert input
- Action: Developing a telecommunications permitting manual
- Action: Publishing permit timeline expectations and metrics
- Action: Creating a mechanism for receiving feedback from applicants on the application process

Smart practice 1B: Optimizing permitting for broadband projects
- Action: Establishing a single point of contact for broadband permitting
- Action: Creating a dedicated telecommunications permit
- Action: Distinguishing between major and minor broadband permits
- Action: Developing an online permitting portal
- Action: Developing a batch permitting process
- Action: Coordinating permitting policies and procedures among jurisdictions in the region

Smart practice 1C: Revisiting all policies periodically to comply with changing state and federal rules

Smart practice 1D: Developing strategies for scaling up staffing and support

2. Strategies for facilitating access to key assets

Smart practice 2A: Creating access to public assets for new deployment
- Action: Enabling leasing of public assets to ISPs
- Action: Trading or swapping access to public assets for access to private infrastructure
- Action: Building new assets where feasible

Smart practice 2B: Creating conditions that make deployment of private assets more likely
- Action: Requiring conduit installation in new developments and during major renovations
- Action: Facilitating aerial construction by encouraging pole owners to facilitate make-ready

Smart practice 2C: Encouraging deployment of public and private assets
- Action: Developing a “Build Once” policy
- Action: Developing a “Dig Once” policy to promote conduit and fiber construction

3. Strategies for creating equitable access to information

Smart practice 3A: Making public GIS datasets available where possible

Smart practice 3B: Documenting public fiber assets

Smart practice 3C: Documenting public conduit assets

Smart practice 3D: Coordinating telecommunications infrastructure mapping across permitting agencies

4. Approaches to undertaking these strategies

Smart practice 4A: Creating a cross-agency taskforce with executive leadership

Smart practice 4B: Making broadband part of local government strategic planning and coordination

Appendix: Case studies

City of Los Angeles

With a population of roughly 10 million residents, Los Angeles County is California's largest county.[14] The County incorporates 88 municipalities, including the City of Los Angeles, the United States' second-largest city.[15] In terms of transportation, the County's Department of Public Works (Public Works) serves as the primarily transportation authority for the approximately 1 million residents who live in unincorporated areas of the County and maintains roughly 3,200 miles of roadway itself in these areas.[16]

Public Works has five local permitting offices in addition to two teams of permit technicians at its headquarters. Permit applications are submitted through Public Works' electronic permitting system, EPIC-LA, and filtered between the closest local permitting office and headquarters depending on the application's specifications. Most permits related to telecommunications projects are reviewed by the two permitting teams at headquarters: Flood Control and Road Projects. Both permitting offices cover telecommunications applications with an encroachment permit or an excavation permit.

Encroachment permits are required if a project will take place in County-owned rights-of-way (including underground and aerial fiber or conduit, small cell facilities, and all other wireless facilities), while excavation permits are required when a utility will be installed underground in County-owned rights-of-way. The County also has an extensive network of Flood Control Districts, which are owned and maintained by the County. Projects that propose to deploy on Flood Control District property (including rights-of-way, land, and facilities) are filtered through the Flood Control permit team at headquarters, while all other applications go through the Road Project permit team.

Public Works recently developed a microtrenching ordinance, a small cell wireless facilities ordinance, and a wireless ordinance. The small cell ordinance is accompanied by a checklist that guides applicants on the necessary steps to receive a permit. Both the small cell wireless facilities and wireless facilities ordinances were also accompanied by a wireless facilities design manual that outlines Public Works' construction and design standards. Public Works has not yet developed a design standard manual for wireline telecommunications infrastructure.

Public Works does not have a formal dig once policy, although they do have a Joint Trench Utility permit that allows developers to apply for multiple dry utilities to share an open trench, generally in new developments. Public Works issues a Blanket Utility Permit that allows a city, municipal utility district, municipal water district, or public utility to apply for a single, annual permit for the installation of service connections and routine maintenance of facilities.

On the wireless side of telecommunications permits, Public Works is in the process of both acquiring tens of thousands of new poles and of executing new Master Lease Agreements with carriers to allow for the installation and maintenance of new small cell wireless facilities on County poles.

San Diego County

San Diego County has a population of roughly 3.3 million residents and is the state's second-largest county.[16] The County has 18 incorporated cities within its boundaries, including the City of San Diego, which is the United States' eighth-largest city with a population of roughly 1.5 million residents.[17]

The County divides permit applications for telecommunications projects between encroachment, excavations, and small cell wireless facilities. These permits are clearly defined on the County's website and are accompanied by brochures that neatly outline what these permits are, when they apply to projects, and how much to expect in associated permit fees. Applications are submitted by email using a PDF application.

The County published a Design Standards manual for public works projects that includes diagrams for construction in certain areas and situations. However, the manual does not include a telecommunications-specific section or specifications for telecommunications infrastructure.

14 "QuickFacts: Los Angeles County, California," United Sates Census Bureau, https://www.census.gov/quickfacts/losangelescountycalifornia.

15 "The 200 largest cities in the United States by population 2022," (n.d.). World Population Review, https://worldpopulationreview.com/us-cities.

16 "Population of Unincorporated Communities, Los Angeles County," Los Angeles Almanac, http://www.laalmanac.com/population/po28.php; "Miles of Public Roads, Los Angeles County," Los Angeles Almanac, http://www.laalmanac.com/transport/tr01.php.

17 "QuickFacts: San Diego County, California." (n.d.). United States Census Bureau, https://www.census.gov/quickfacts/fact/table/sandiegocountycalifornia/PST045221.

18 "The 200 largest cities in the United States by population 2022," (n.d.). World Population Review, https://worldpopulationreview.com/us-cities.

City of San José

The City of San José has a population of roughly 1 million residents, placing it as the tenth-largest city in the United States and the most populous city in the Bay Area.[19] The City's telecommunications permits are controlled by the Department of Public Works, which offers encroachment permits for telecommunications infrastructure.

The City has an intuitive electronic permitting system, SJePlans, that allows applicants to submit encroachment permits through an online portal. The City also has a robust GIS web application that includes layers of small cell eligible poles, streetlights, pavement conditions, planning permits that have at least one antenna or monopole, and capital improvement projects.[20]

The City distinguishes between major and minor permits along the lines of major and minor streets and the type of work being proposed.[21] Minor permits for "standard" projects charge a $501 fee per permit, while minor permits for fiber or small cell projects charge the cost of time and materials.[22]

The City provides design standards and application guidelines for encroachment permits that are easily accessible on Public Works' website. These standards include figures for underground fiber and conduit and small cell facilities but not for aerial fiber or other wireless facilities.

19 Ibid.

20 "City of San José Maps Gallery," https://gis.sanjoseca.gov/apps/mapsgallery/.

21 Department of Public Works. (n.d.). "Major/Minor Permit Chart," City of San José, https://www.sanjoseca.gov/home/showpublisheddocument/33139/637507980695970000.

22 Department of Public Works. (n.d.). "Utility Permit Fees," City of San José, https://www.sanjoseca.gov/home/showpublisheddocument/38569/637647102419900000.

City of Campbell

The City of Campbell is a small city in Santa Clara County that encompasses roughly 44,000 residents and 6 square miles of land.[23] Telecommunications permitting is under the purview of the City's Department of Public Works.

Unlike many other jurisdictions in California, Public Works' encroachment permit encompasses the activities typically split between encroachment and excavations permits. Public Works' encroachment permits are then divided between the following types of activities:[24]

- Utility Work – includes all utility companies as well as private contractors hired by property owners to do the trenching or boring for the placement of these facilities
- R-1 Residential – minor frontage work for existing single-family homes, which must be homeowner-occupied
- Land Development – construction of frontage improvements required by a Building or Planning permit
- Miscellaneous Work – temporary use of the right-of-way for activities not listed above
- Small Cell – for small cell wireless facilities in the right-of-way

Public Work's website clearly describes the activities that fall under each of these subcategories and includes additional webpages for each type of activity. The City enforces a five-year moratorium for trenching in recently resurfaced streets.
Public Work's utility work webpage outlines what category of companies—which include utility companies, fiber companies, and trenching contractors—and activities require an encroachment permit for utility work. It also lists the preliminary items needed for this type

23 "QuickFacts: Campbell City, California." (n.d.). United States Census Bureau, https://www.census.gov/quickfacts/fact/table/campbellcitycalifornia/PST045221.

24 "Encroachment Permits." (n.d.). Campbell, California. https://www.campbellca.gov/186/Encroachment-Permits.

of encroachment permit, including a Master Encroachment Agreement, which is required for fiber companies applying for an encroachment permit.[25] Public Works uses an electronic permitting system, MyGovernmentOnline, to process these permits.[26]

Similarly, Public Work's small cell webpage includes accessible links to published small cell design standards, application guidelines (including an application checklist), and relevant municipal code sections. This webpage also includes a description of small cell wireless facilities with reference to the FCC's regulation of the technology.[27]

Public Works charges an application fee of $584 per application for utility/fiber projects, plus a minimum of $84 for inspection. For small cell wireless facilities, Public Works charges $270 per pole for an annual license fee a minimum of $8,137.76 permit review and inspection, and $8,000 for a Master License Agreement.[28]

25 "Utility Work." (n.d.). Campbell, California. https://www.campbellca.gov/653/Utility-Permit.

26 MyGovernmentOnline, https://www.mygovernmentonline.org/apply/?SectionID=1&State=CA&JurisdictionID=187&ProjectTypeID=63.

27 "Small Cell Wireless Facilities Deployment in Public Right-Of-Way." (n.d.). Campbell, California. https://www.campbellca.gov/969/Small-Cell-Wireless-Facilities-Deployment.

28 "Master Fee Schedule." (2021, July 1). City of Campbell. https://www.campbellca.gov/DocumentCenter/View/505/Public-Works-Fees?bidId=.

City of Oakland

The City of Oakland is the third-largest city in the Bay Area with a population of roughly 440,000.16 The City of Oakland's Department of Planning and Building holds the City's One-Stop Permit Center, through which all permits are directed.[29]

The City divides telecommunications activities between encroachment and utility excavation permits. Each permit has a dedicated webpage with embedded detailed descriptions of the permit and permit process. Encroachment permits are divided between major and minor permits along the following definitions:[30]

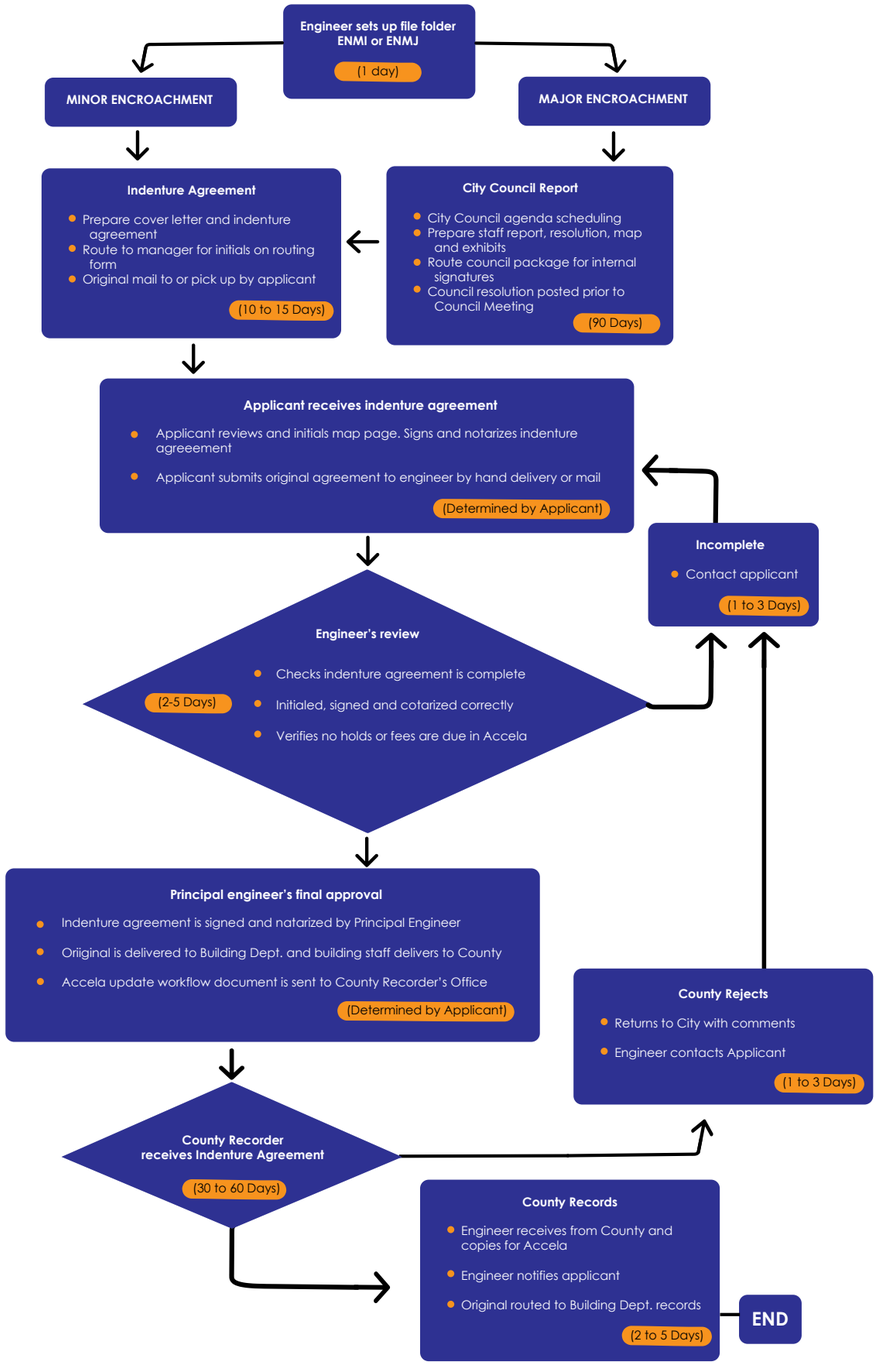
- Minor encroachment: "…an encroachment into the public right-of-way resting on or projecting into the sidewalk area, but which is not structurally attached to a building, such as flowerpots, planter boxes, clocks, flagpole sockets, bus shelters, phone booths, bike racks, fences, non-advertising benches, curbs around planter areas, displays of flowers, fresh fruits and vegetables."
- Major encroachment: "…anything attached to a structure or constructed in place so that it projects into the public right-of-way such as basement vaults, kiosks, covered conveyors, crane extensions, earth retaining structures, and structure connected planter boxes, fences, or curbs. Projections over any public street, alley or sidewalk in excess of the limitations specified in the Oakland Building Code shall also be classified as major encroachments, including theater marquees, signs suspended above the sidewalk, oriel windows, balconies, cornices and other architectural projections."

As shown on the next page in Figure 13, in terms of permitting process, the difference between major and minor permits is that the City Council must review major projects. Otherwise, the encroachment permit follows a standard workflow that involves an engineer's review with acceptance or rejection. The City also includes the estimated duration of each step in the process.

29 "QuickFacts: Oakland city, California." (n.d.). United States Census Bureau. https://www.census.gov/quickfacts/oaklandcitycalifornia.

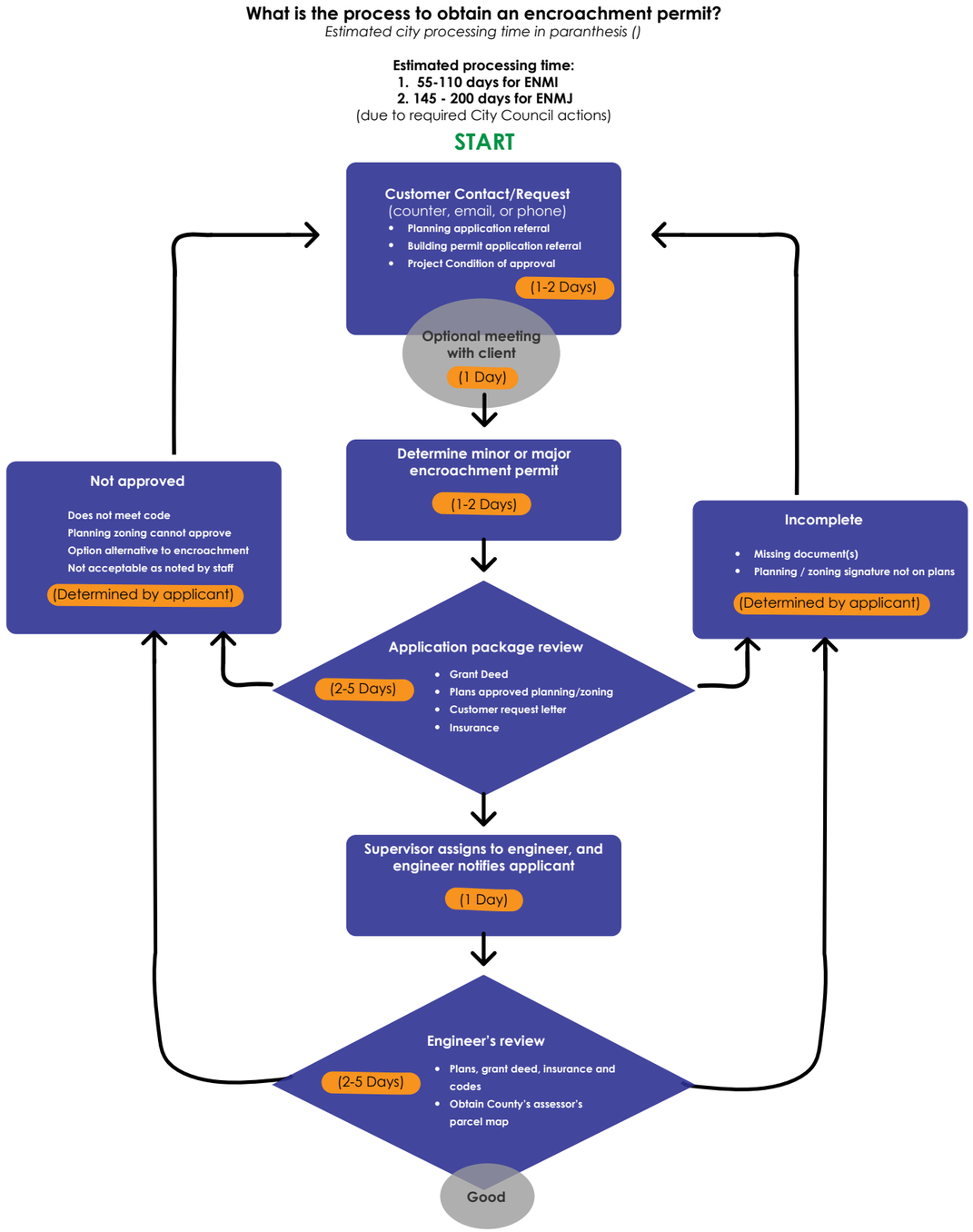
30 "Planning and Building." (n.d.). City of Oakland. https://www.oaklandca.gov/departments/planning-and-building#planning-zoning.; "Online Permit Center." (n.d.). City of Oakland. https://aca-prod.accela.com/OAKLAND/Default.aspx.

Figure 13: City of Oakland major/minor encroachment permit process



63

Figure 14: City of Oakland permitting process and timeline



64

The City also outlines the encroachment permit process and provides estimates for the duration of each step in the process. Utility excavation permits are required for activities such as boring or potholing, and the City has a similar webpage describing the permit as it does with encroachment permits. The figures below outline the excavation permit process with estimated timelines for each step.

Figure 15: City of Oakland utility excavation permit process

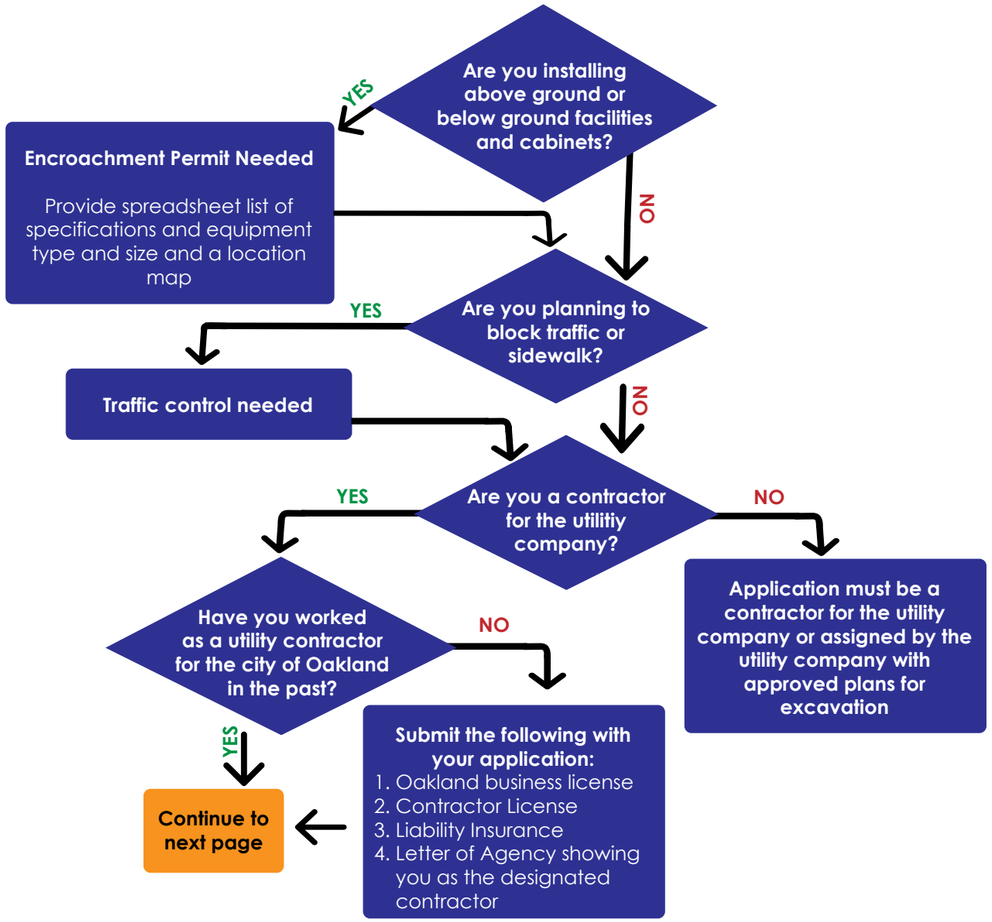
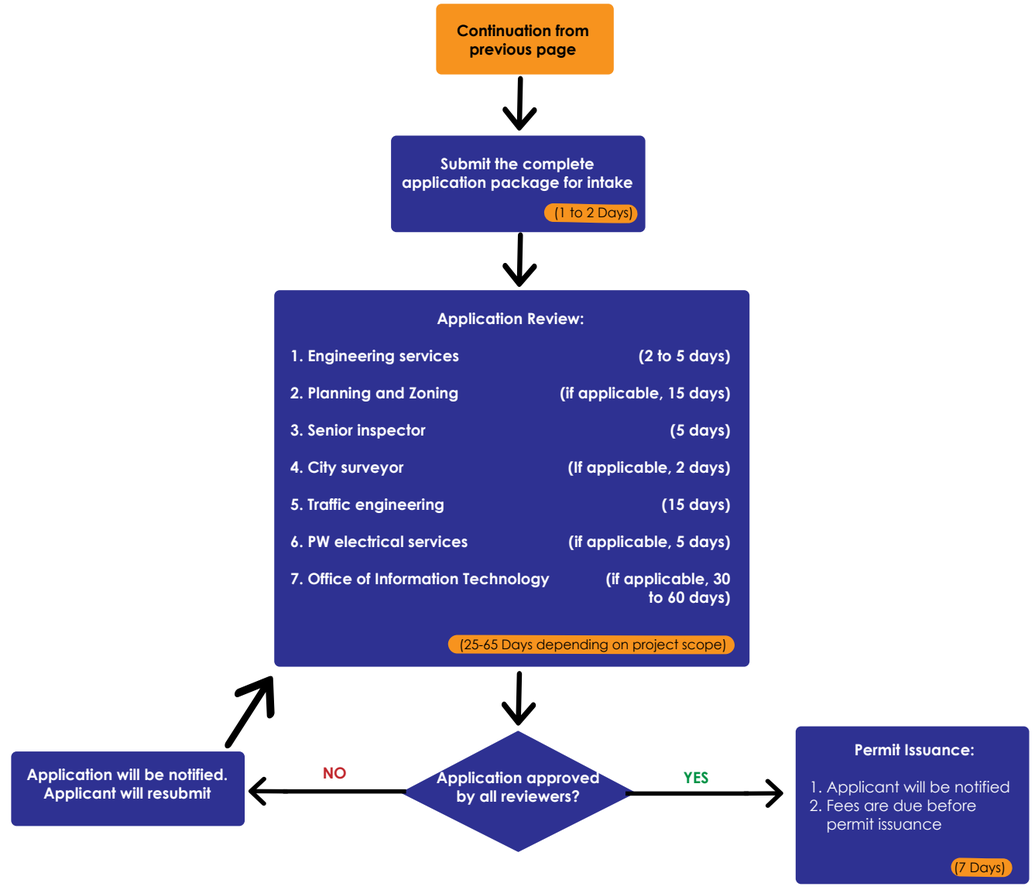


Figure 16: City of Oakland utility excavation permit process (continued)



The City charges $1,781 for permits on new encroachment and $3,176 for existing encroachment, plus a $13 filling fee and $57 application fee.[31] For major encroachment permits, the City charges $4,980 for City Council Action. Regarding excavation permits, the City charges $1,257.90 for projects exceeding 300 feet and $454.65 for projects no longer than 300 feet for permit review, $183.83 per hour for inspection, and $70 as an application fee.[32]

31 "Application for Encroachment Permit." (n.d.). City of Oakland. https://cao-94612.s3.amazonaws.com/documents/Application-for-Encroachment-Permit-ENMI-Permit-ENMJ-Permit.pdf.

32 "Application for Utility Company Excavation Permit." (n.d.). City of Oakland. https://cao-94612.s3.amazonaws.com/documents/2021-Utility-Permit-Application.pdf.

Western Riverside Council of Governments
Public Works Committee

Staff Report

Subject: **TUMF Nexus Study - Review of Jurisdictional Requests to Add Projects**

Contact: **Donald Hubbard, GHD Technical Director- Traffic Engineering and Transportation Planning, donald.hubbard@ghd.com, (916) 245-4226**

Date: **June 8, 2023**

Requested Action(s):

1. Receive and file.

Purpose:

The purpose of this item is to provide information on the TUMF Nexus Study update.

WRCOG 2022-2027 Strategic Plan Goal:

Goal #5 - Develop projects and programs that improve infrastructure and sustainable development in the subregion.

Background:

TUMF Nexus Study Update

At its October 4, 2021, meeting, the Executive Committee gave direction for staff to begin work on a TUMF Nexus Study update. The TUMF Nexus Study draws a connection between the needs of the Program and the TUMF Program Fee Schedule. This Nexus Study identifies projects requiring mitigation from new development, determines what the cost of those projects will be, and what fees need to be assessed to fund these projects. TUMF Nexus Study updates have occurred on a regular basis with updates done in 2005, 2009, 2011, and 2017.

The key reasons for a Nexus Study update include the following:

- It is considered a best practice to update on a regular basis
- Underlying growth forecasts have changed since the last update
- Travel behavior has changed, particularly viewed in light of COVID-19
- The project list has changed, with past projects completed and new projects identified
- Opportunity to add new project types, such as Intelligent Transportation System (ITS) infrastructure

Staff and consultants have worked to update the three key elements of the Nexus Study:

1. Land use forecasts
2. List of TUMF projects
3. Project cost estimates

Land Use Forecasts: The updated Nexus Study uses the land use forecasts for the region developed during the adopted SCAG Regional Transportation Plan / Sustainable Communities Strategy (RTP/SCS). WRCOG, consultants, and member agencies conducted a detailed review of the SCAG data at the Traffic Analysis Zone (TAZ) level to verify that the existing and projected distributions matched local data. Based on these adopted growth projections, SCAG is projecting that the WRCOG subregion will experience a population growth of 33% (from 2016 to 2045) and employment is projected to grow by 46% (from 2016 to 2045).

Roadway Network: Since 2021, staff has been working with local agencies to update the needs of the TUMF Network. Staff has met with representatives of all TUMF participating agencies. Each agency has had an opportunity to make revisions, corrections, and additions to the TUMF Network. WRCOG has met with all of WRCOG's member agencies which have submitted requests for additions and changes to the Network.

Each project request was submitted by WRCOG member agencies and reviewed during a TUMF Zone staff meeting. Please note that the process to include projects in the updated Nexus Study is as follows:

1. WRCOG member agency requests that a project be added.
2. The Nexus Study consultant includes the proposed project in the Nexus Study travel demand model.
3. WRCOG staff and consultants evaluate the project against objective criteria such as traffic volume, volume to capacity ratio, and number of future lanes. Projects must have a minimum of four lanes to be included in the Nexus Study.
4. If the proposed project meets the above criteria, then the project is included in the Nexus Study project list.

This list of projects was confirmed during the April 13, 2023, PWC meeting. Representatives from GHD will report on their analysis of the TUMF Network additions submitted by WRCOG member agencies for inclusion in the TUMF Nexus Study.

Prior Action(s):
July 11, 2022: The Executive Committee received and filed.

March 17, 2022: The Technical Advisory Committee received and filed.

March 10, 2022: The Public Works Committee received and filed.

October 4, 2021: The Executive Committee gave direction to 1) begin work on a TUMF Nexus Study update; 2) update the TUMF Administrative Plan to expand the TUMF-eligible project list to include Intelligent Transportation Systems (ITS) projects; 3) work with the Riverside County Transportation Commission and Riverside Transit Agency to evaluate options to mitigate VMT impacts from new development outside of the TUMF Nexus Study update; and 4) begin work on an update of the Analysis of Development Impact Fees in Western Riverside County.

Fiscal Impact:
Funding for this Nexus Study update is provided by the share of TUMF revenues which are provided to WRCOG for Administration of the Plan. WRCOG collects 4% of all TUMF revenues for Administrative purposes, of which 3% can be used for expenses including consultants to support the TUMF Program, such as the Nexus Study update. Funds for the remainder of the Fiscal Year 2022/2023 are currently allocated in the approved budget for this expense. Funding for subsequent years will be allocated as those subsequent budgets are developed and approved by the Executive Committee. Current cost of the Nexus Study is estimated to be $200k. TUMF revenues and expenditures are associated with Fund 220.

Attachment(s):
None.

Western Riverside Council of Governments
Public Works Committee

Staff Report

Subject: AB 602 and Residential Trip Generation Studies Activities Update

Contact: Jason Pack, Principal, Fehr & Peers, j.pack@fehrandpeers.com, (951)274-4800

Date: June 8, 2023

Requested Action(s):

1. Receive and file.

Purpose:

The purpose of this item is to provide an overview of Assembly Bill (AB) 602 and present the findings of the Residential Trip Generation Studies.

WRCOG 2022-2027 Strategic Plan Goal:

Goal #5 - Develop projects and programs that improve infrastructure and sustainable development in our subregion.

Background:

Assembly Bill (AB) 602 (Grayson), effective January 1, 2022, added requirements related to development fees. Some components of the bill impact both jurisdictions and WRCOG, while other components will only affect jurisdictions. This staff report will briefly review AB 602, touching on the general requirements and providing a detailed review on how WRCOG is ensuring compliance with a specific provision of the bill. This provision requires that local agencies calculate fees proportionately to the square footage of the proposed units, and to have a valid method to establish a reasonable relationship between the fee charged and the burden of the proposed development. The Transportation Uniform Mitigation Fee (TUMF) Program is an impact fee program subject to AB 602 that is not currently based on square footage but instead charges a fee on a per unit basis. This study provides the preliminary analysis required to address the requirements of AB 602 and further explore if a shift in TUMF collection from a per unit fee to a fee based on size (square footage) is appropriate.

AB 602

There are three major components of AB 602:

1. Permit Streamlining Act Changes: A city or county is required to request from the developer the total amount of fees and exactions associated with a project upon the issuance of a certificate of occupancy or the final inspection, whichever occurs last, and to post this information on its internet website.
2. Direction to the California Department of Housing and Community Development (HCD): By

January 1, 2024, HCD is required to create an impact fee nexus study template that may be used by local jurisdictions. The template will include a method of calculating the feasibility of housing being built with a given fee level.

3. Mitigation Fee Act Changes: A local agency that conducts an impact fee nexus study is required to follow specific standards and practices, including that 1) prior to the adoption of an associated development fee, a nexus study be adopted, 2) the nexus study identify the existing level of service for each public facility, identify the proposed new level of service, and include an explanation of why the new level of service is necessary, and 3) if the study is adopted after July 1, 2022, either calculate a fee levied or imposed on a housing development project proportionately to the square footage of the proposed units, or make specified findings explaining why square footage is not an appropriate metric to calculate the fees.

The Transportation Uniform Mitigation Fee (TUMF) Program

The TUMF Program is an obligation that must be met on all new development in Western Riverside County, except for some uses that are deemed exempt from paying TUMF by the TUMF Program. So where the local agency has determined that TUMF is due, a developer will need to pay their TUMF fees. The fee for residential uses are charged on a per units basis of unit type (single-family or multi-family). For example, a 1,500 square foot single-family dwelling unit is charged the same fee as a 4,500 square foot single-family dwelling unit; similarly, an 800 square foot studio apartment unit is changed the same fee as a 1,200 square foot 3-bedroom apartment unit.

Single-Family and Multi-Family Residential Trip Generation Studies

WRCOG worked with Fehr & Peers to review the relationship between travel behavior, residential unit size, and other residential characteristics. The study enabled WRCOG to research if there is a correlation between residential unit size and trip generation. The correlation will enable WRCOG to determine if a size-based TUMF fee structure may encourage the development of smaller, more affordable units. The key findings for each of the studies is provided below and the full study is provided as an attachment to this Staff Report.

Single-Family Residential Trip Generation - Key Findings

- Is home size a key predictor of residential vehicle trip generation? Yes, for homes of 2,500 square feet or less the trips increase with the larger home size. After 2,500 square feet, the number of trips stay constant with home size, all else being equal.

- Are there other characteristics that have a higher predictive relationship than home size? Yes, the trip generation increases with the total household population, average number of children, and average number workers. Home size accounts for approximately 50% of the increase in home size for homes less than 2,500 square feet with the remaining 50% explained by multiple factors of the people within the home.

- Does the location (i.e., TUMF Zone) change the relationship of home size or the other characteristics? No, the home location may influence the size, number of people, or household income, and/or the distance the trips travel, but does not influence the trips generated.

- Are there recommended changes to the TUMF based on the findings? If so, what is the potential

impact to the TUMF collection and home owners? Yes, it is recommended that smaller homes pay a fee based on home size. The appropriate fee should be evaluated by the TUMF fee consultant to determine the potential impact to fees collected compared to the current fee expectation. Smaller homes paying less could potentially make home ownership less expensive overall compared to larger homes.

Multi-Family Residential Trip Generation - Key Findings

- Are the size of the dwelling unit or number of bedrooms in a dwelling unit key predictors of residential multi-family generation? No, the size of the dwelling unit nor the number of bedrooms in a dwelling unit are key predictors of trip generation.

- Are there other characteristics that have a higher predictive relationship than the number of dwelling units? No, the number of dwelling units has the highest predictive relationship.

- Are there recommended changes to the TUMF Program or fee calculations based on the findings? If so, what is the potential impact to the TUMF collection process and to developers? No, it is not recommended that TUMF be updated from basing multi-family development fees on number of dwelling units.

Prior Action(s):
February 8, 2023: The Administration & Finance Committee received and filed.

January 19, 2023: The Technical Advisory Committee received and filed.

December 8, 2022: The Public Works Committee received and filed.

December 8, 2022: The Planning Directors Committee received and filed.

Fiscal Impact:
The Residential Trip Generation Study is covered in Transportation and Planning Department activities are included in the Agency's adopted Fiscal Year 2022/2023 Budget under the Transportation Department. Note: Fiscal impacts will be further analyzed with additional review and consideration of changes to the TUMF.

Attachment(s):
Attachment 1 - Single-Family Trip Generation Memo
Attachment 2 - Multi-Family Trip Generation Memo

Attachment 1

Single-Family Residential Trip Generation Study Memo

FEHR PEERS

Memorandum

Date: November 16, 2022

To: Suzanne Peterson, Christopher Gray, and Chris Tzeng – WRCOG

From: Mike Wallace, Eleanor Hunts, and Jason Pack – Fehr & Peers

Subject: **WRCOG Residential Trip Generation**
Contract No. 2022-65-1400-004 / Task Order No. 2022-65-1400-004-003

OC22- 0864

This memo summarizes the goals, data and analysis, key findings, and recommendations relating to the evaluation of vehicle trip generation and residential development characteristics. Specifically, this memo is intended to inform the Transportation Uniform Mitigation Fee (TUMF) guidelines on the relationship between residential trip generation and home size (square footage) as prescribed in California Assembly Bill 602 (AB 602). This draft memo will be followed-up with a phone call to discuss the recommendations and the memo will be revised and finalized based on the call.

Key Findings

Questions answered through the analysis and the findings are listed below.

- Is home size a key predictor of residential vehicle trip generation? **Yes, for homes of 2,500 square feet or less the trips increase with the larger home size. After 2,500 square feet the number of trips stay constant with home size, all else being equal.**
- Are there other characteristics that have a higher predictive relationship than home size? **Yes, the trip generation increases with the total household population, average number of children, and average number workers. Home size accounts for approximately 50% of the increase in home size for homes less than 2,500 square feet with the remaining 50% explained by multiple factors of the people within the home.**
- Does the location (i.e. TUMF zone) change the relationship of home size or the other characteristics? **No, the home location may influence the size, number of people, or household income, and/or the distance the trips travel, but does not influence the trips generated.**

- Are there recommended changes to the TUMF based on the findings? If so, what is the potential impact to the TUMF collection and home owners? **Yes, it is recommended that smaller homes pay a fee based on home size. The appropriate fee should be evaluated by the TUMF fee consultant to determine the potential impact to fee collected compared to the current fee expectation. Smaller homes paying less could potentially make home ownership less expensive overall compared to larger homes.**

Data Collection

This section describes the data that were used to evaluate the trip generation. Specifically, the identification and selection of study areas, method for obtaining and results of the travel activity, and collection of residential characteristics.

Study Area Selection

To determine the home characteristics that might influence trip generation, representative residential neighborhoods in each of the TUMF zones were identified. The criteria used for selecting neighborhoods included the following:

- Residential land use could be isolated from other uses
- Minimal cut through traffic
- As close to Census Blocks or Block Groups as possible to obtain demographic information
- Minimal construction activity that would change the number of units
- Diverse home size, household income

Based on local knowledge, aerial photos, Census geography, and home information from Zillow, WRCOG staff identified a preliminary list of potential study locations in each TUMF zone. Through discussions and review of each location, Fehr & Peers narrowed down the list of study locations to 23 neighborhoods, shown on **Figure 1**.

Travel Activity

StreetLight Data from smart phones were collected at 23 residential neighborhoods shown on Figure 1 were collected for trips that started or ended within each neighborhood. This method excluded trips that cut through the neighborhood. To avoid holidays, vacations, and to reflect travel when school is in session, data from March 1st through April 30th and September 1st through October 31st for all weekdays in 2019 were collected to represent the average vehicle trips per day for all homes within each study area.

Since StreetLight Data are based on location-based services (LBS) derived from cellular phone applications, 48-hour traffic counts were conducted at eight of the 23 study area locations as a point of comparison. The eight representative count locations were selected to have at least one

location in each TUMF zone, minimize the number of roadways accessing the land use, and to allow the most accurate representation of trips associated with the residential homes without capturing cut through traffic. The eight locations where 48-hour counts were collected are shown on **Figure 2**.

As shown on **Figure 3**, the 48-hour traffic count variation from day to day and the StreetLight Data average are very similar, giving confidence that the StreetLight Data for all study areas would be representative.

Residential Characteristics

The number of homes and characteristics for the homes within each study area were obtained from multiple sources, as summarized in **Table 1**. To identify outliers and the range of values for each variable that would be used to estimate the trip generation, plots of each study location by TUMF zone were developed and are summarized below with reference to the appropriate figure.

- **Figure 4 – Median Square Footage**: good distribution across study areas and within each TUMF zone
- **Figure 5 – Average Persons per Household**: good distribution across study areas and within each TUMF zone
- **Figure 6 – Average Children per Household**: good distribution across study areas and within each TUMF zone, including one study area that has very high children per household and another study area that has very low children per household
- **Figure 7 – Average Workers per Household:** good distribution across study areas and within each TUMF zone
- **Figure 8 – Median Cost per Square Foot**: good distribution across study areas and within each TUMF zone

Based on the review of each variable, the range across the study areas and within each TUMF zone are appropriate for use in the trip generation analysis.

Trip Generation Results

The StreetLight Data daily vehicle trips were used to visually display the relationship of each home characteristic for each study area and within each TUMF zone. The appropriate figure number and conclusion for the relationship are listed below.

- **Figure 9 – Daily Vehicle Trips per Median Square Footage**: slight increase in vehicle trips as median square footage increases
- **Figure 10 – Daily Vehicle Trips per Average Persons per Household**: slight increase in vehicle trips as total number of people per household increases

- **Figure 11 – Daily Vehicle Trips per Average Children per Household**: slight increase in vehicle trips as average number of children per household increases
- **Figure 12 – Daily Vehicle Trips per Average Workers per Household:** slight increase in vehicle trips as average number of workers per household increases
- **Figure 13 – Daily Vehicle Trips per Median Cost per Square Foot**: no clear relationship between average number of workers and trip generation

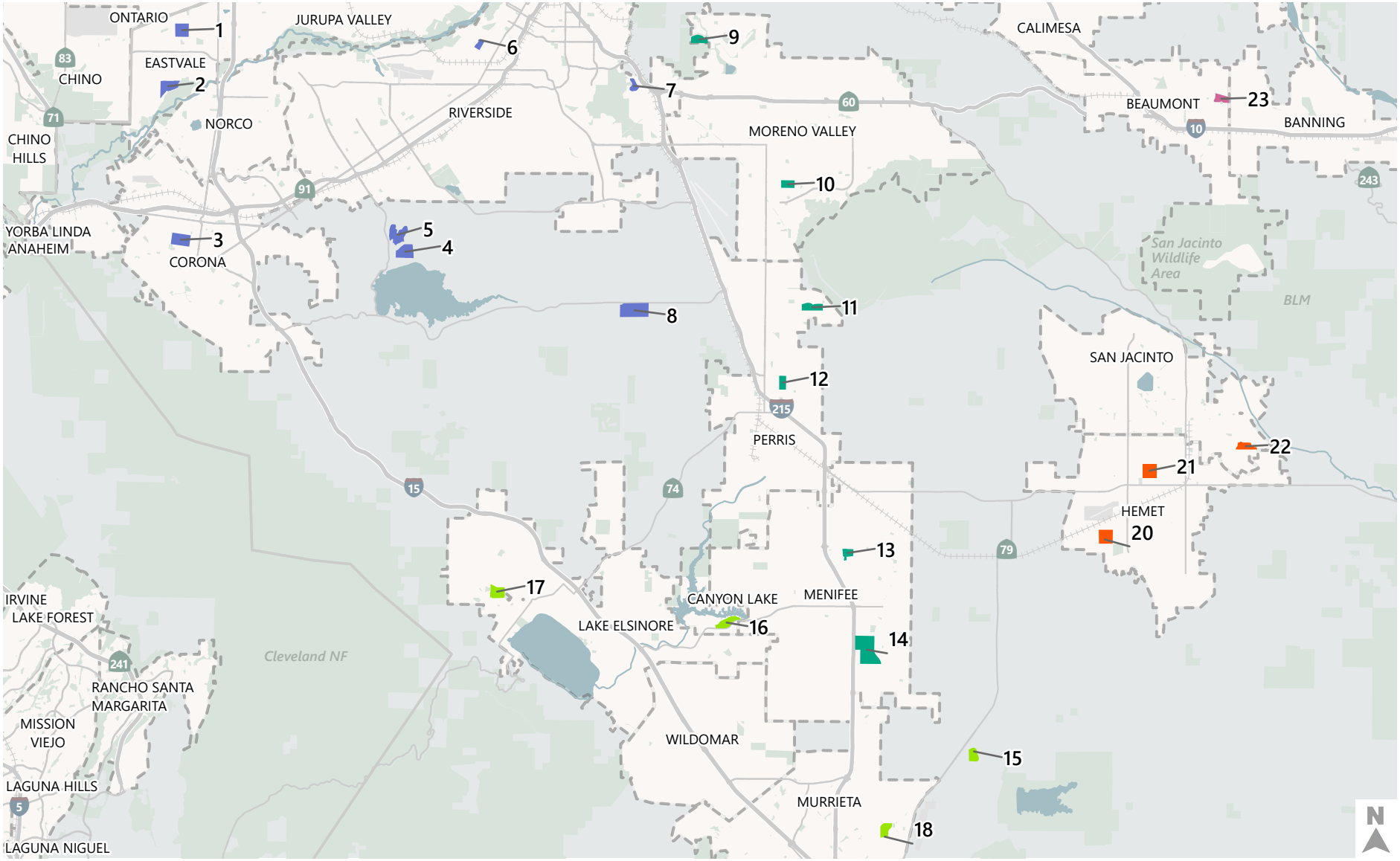
In addition to visual representations of the data, statistical analysis was performed to obtain the correlation between the variables to daily vehicle trips and to determine the regression equations.

Figure 16 – Correlation Matrix for All Variables: the correlation values in the green box for average and median home size of 0.7 indicate a strong positive correlation and mean as home size increases the number of trips increase. The correlation value of 0.7 results in an R-square of 0.49, meaning nearly half of the increase in trip generation is related to home size.

Based on Figures 10 and 11, the relationship between trip generation appeared to be linear, with the relationship possibly changing around 2,500 square feet. The linear regression analysis of average home size was performed for all home sizes, homes 2,500 square feet or smaller, and homes larger than 2,500 square feet. The results of the analysis are summarized in **Table 2**. The results show for home sizes of 2,500 square feet or less, the influence of the home size (represented by the coefficient) is nearly double that when all home sizes are included in the regression. The nearly zero coefficient and very high constant for the regression of home sizes above 2.500 square feet indicate that the trip generation is nearly constant for homes above 2,500 square feet.

Recommendations and Next Steps

Although home characteristics other than square footage have a slight increase in trip generation, the ability to forecast or control all of the characteristics other than home square footage is very difficult. Based on the results of trip generation and discussions with WRCOG regarding the feasible size of homes being constructed in the region, WRCOG will work with the TUMF fee consultant to identify and recommend appropriate fee adjustments based on square footage.



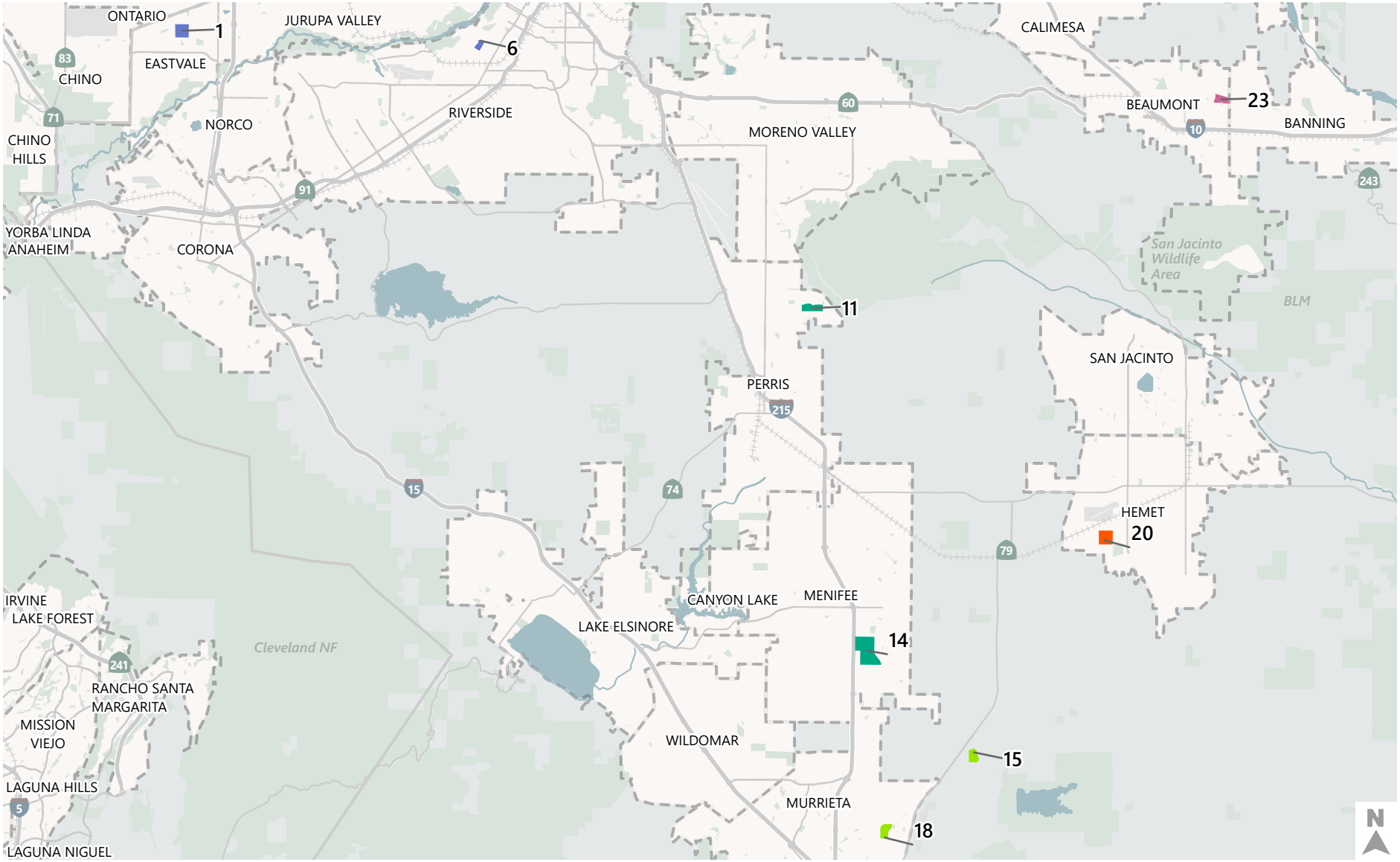
Study Location by TUMF Zone

- Central
- Hemet/San Jacinto
- Northwest
- Pass
- Southwest

City Boundaries

Figure 1

StreetLight Data Collection Locations



Study Location by TUMF Zone

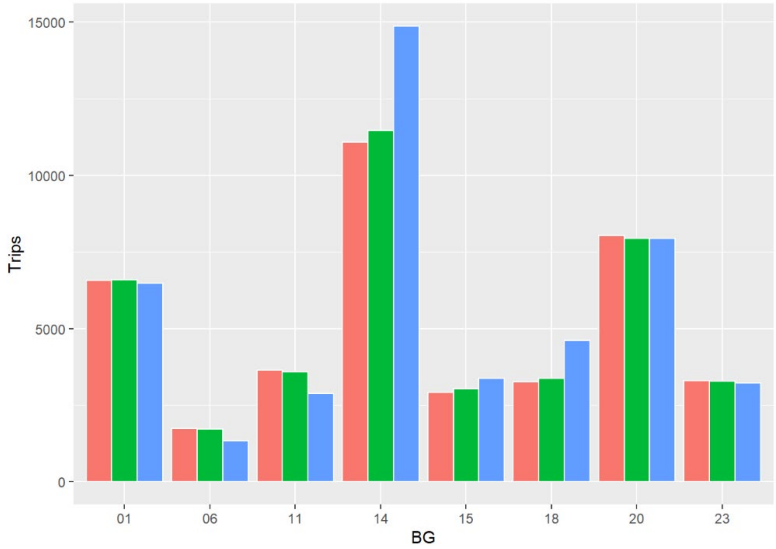
- Central
- Hemet/San Jacinto
- Northwest
- Pass
- Southwest

City Boundaries

Figure 2

Traffic Count Data Collection Locations

Figure 3 – Comparison of Individual Traffic Counts and StreetLight Data Average



Note: Red and green are the two days of manual count collection and blue are the StreetLight Data average. The BG number corresponds to the number on Figure 2.

Figure 4 – Median Square Footage

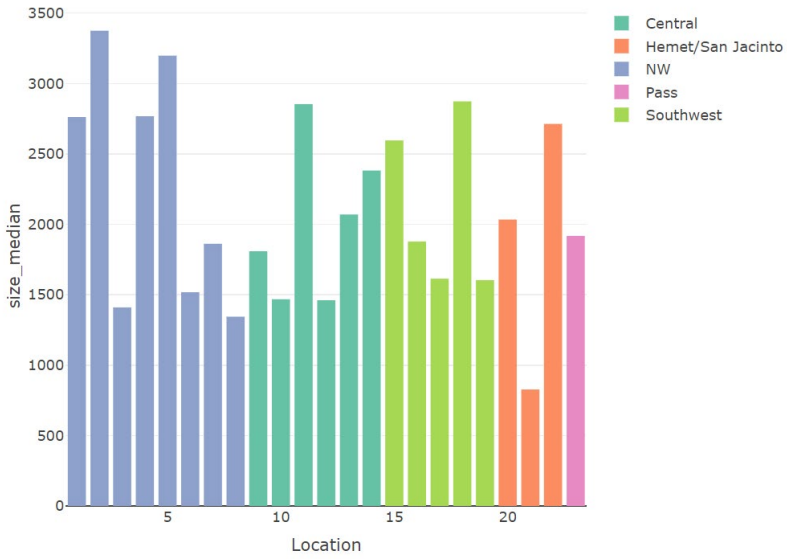


Figure 5 – Average Persons per Household

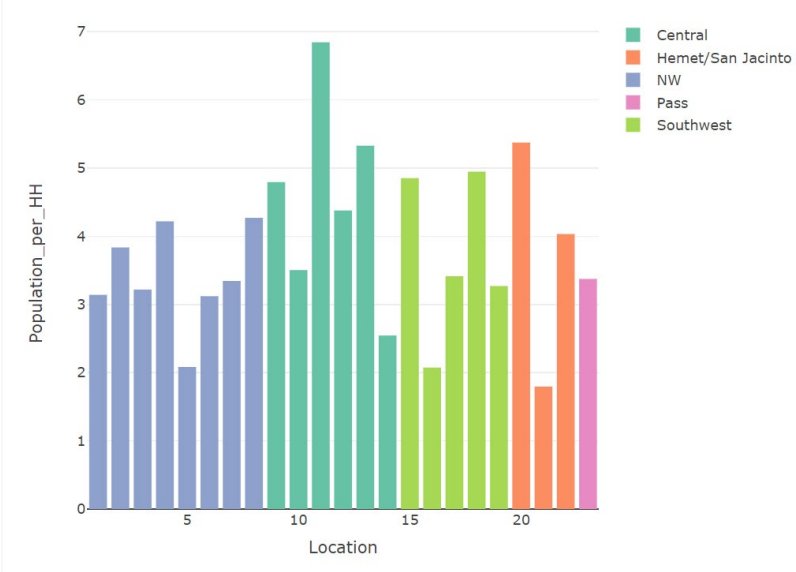


Figure 6 – Average Children per Household

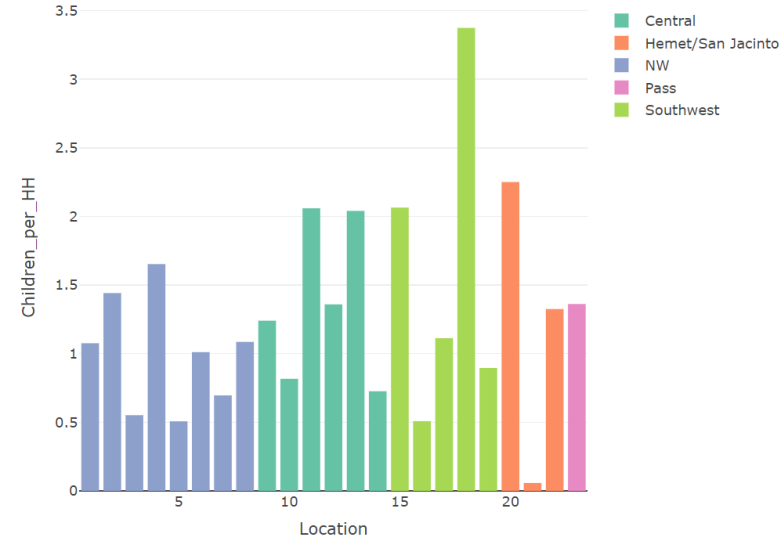


Figure 7 – Average Workers per Household

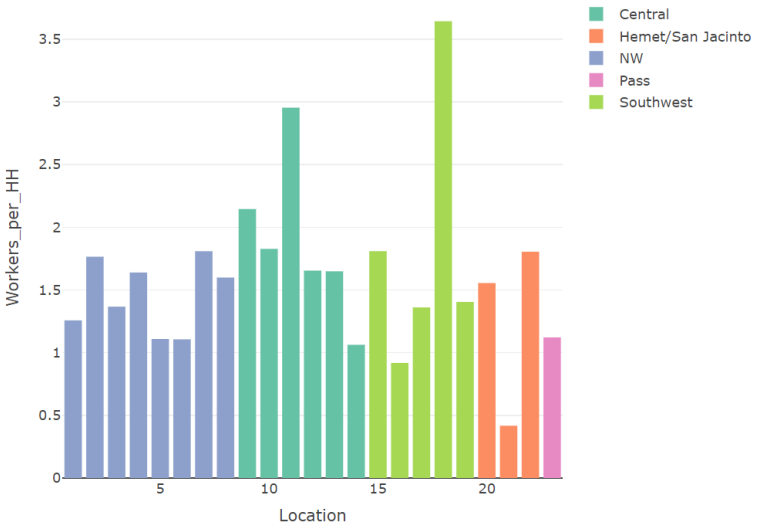


Figure 8 – Median Cost per Square Foot

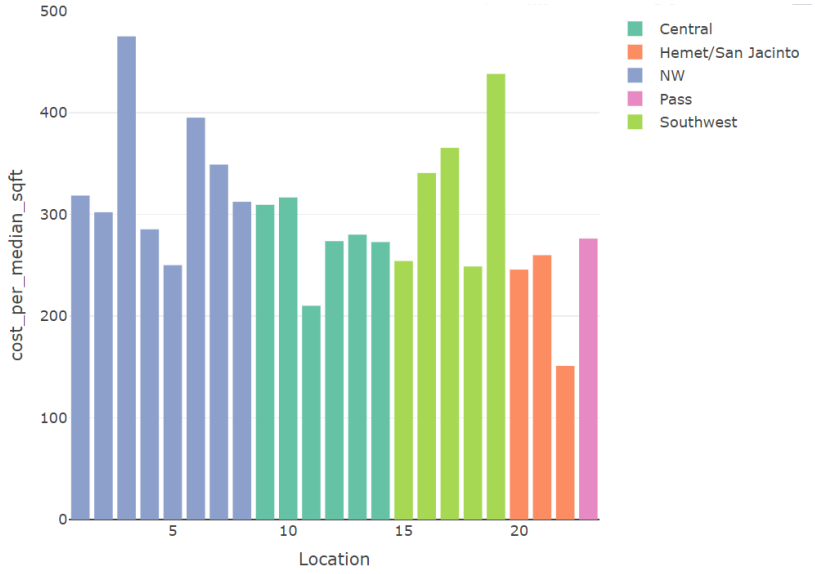


Figure 9 – Daily Vehicle Trips per Median Square Footage

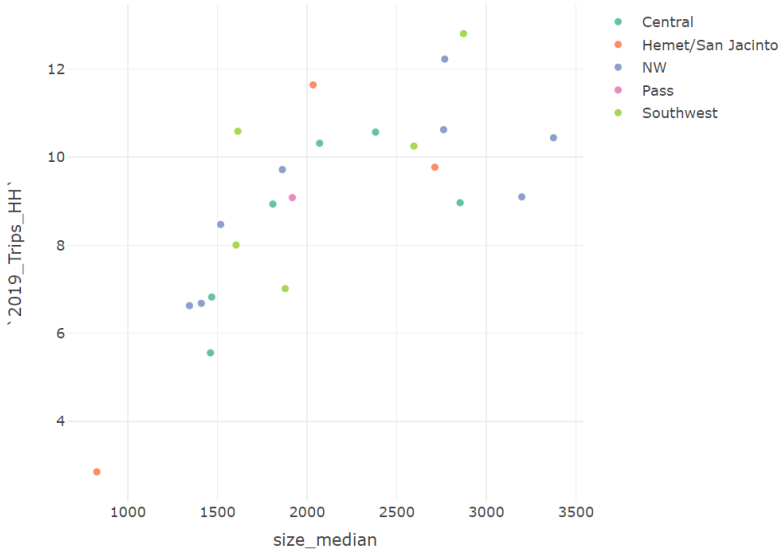


Figure 10 – Daily Vehicle Trips per Average Persons per Household

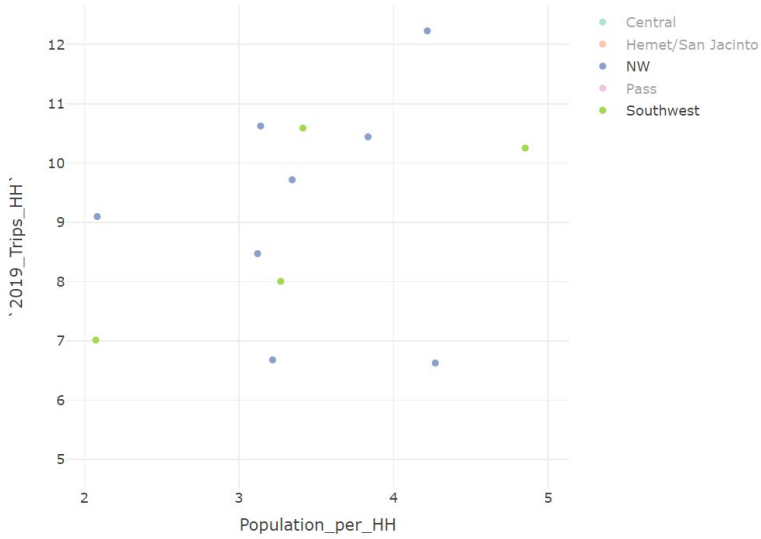


Figure 11 – Daily Vehicle Trips per Average Children per Household

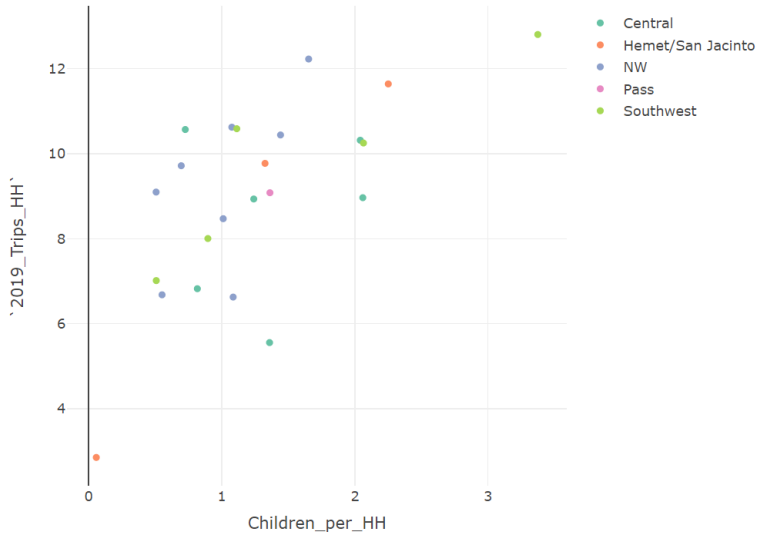


Figure 12 – Daily Vehicle Trips per Average Workers per Household

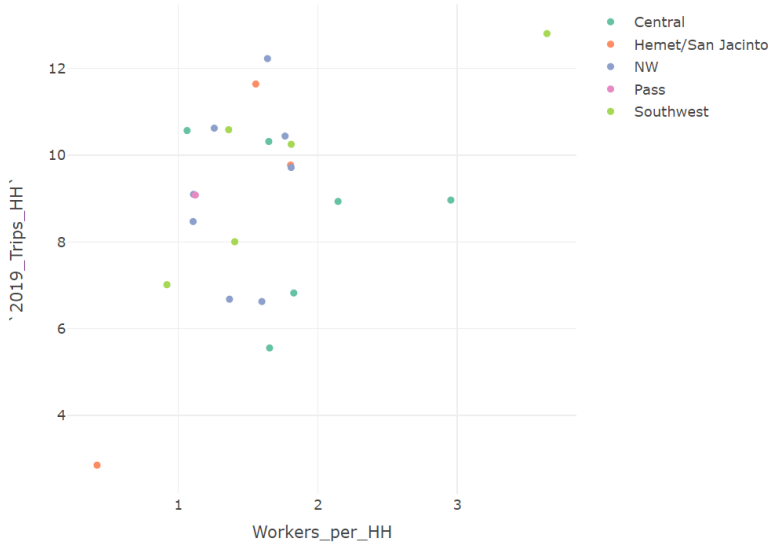


Figure 13 – Daily Vehicle Trips per Median Cost per Square Foot

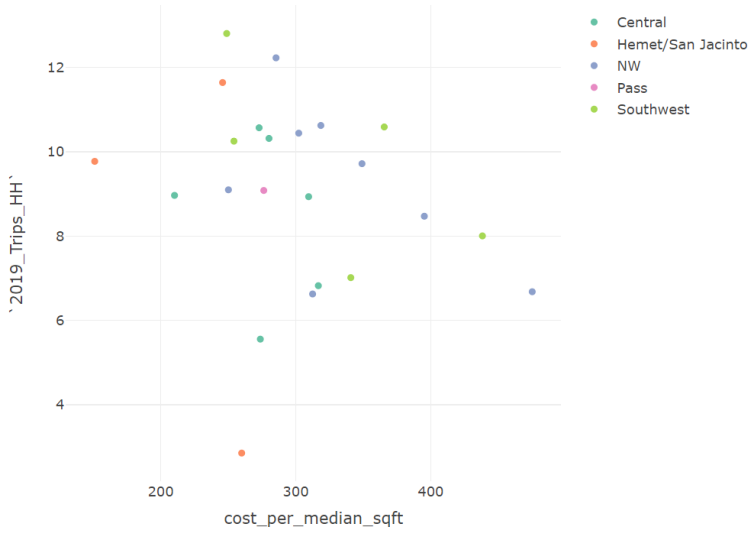


Figure 14 – Correlation Matrix for All Variables

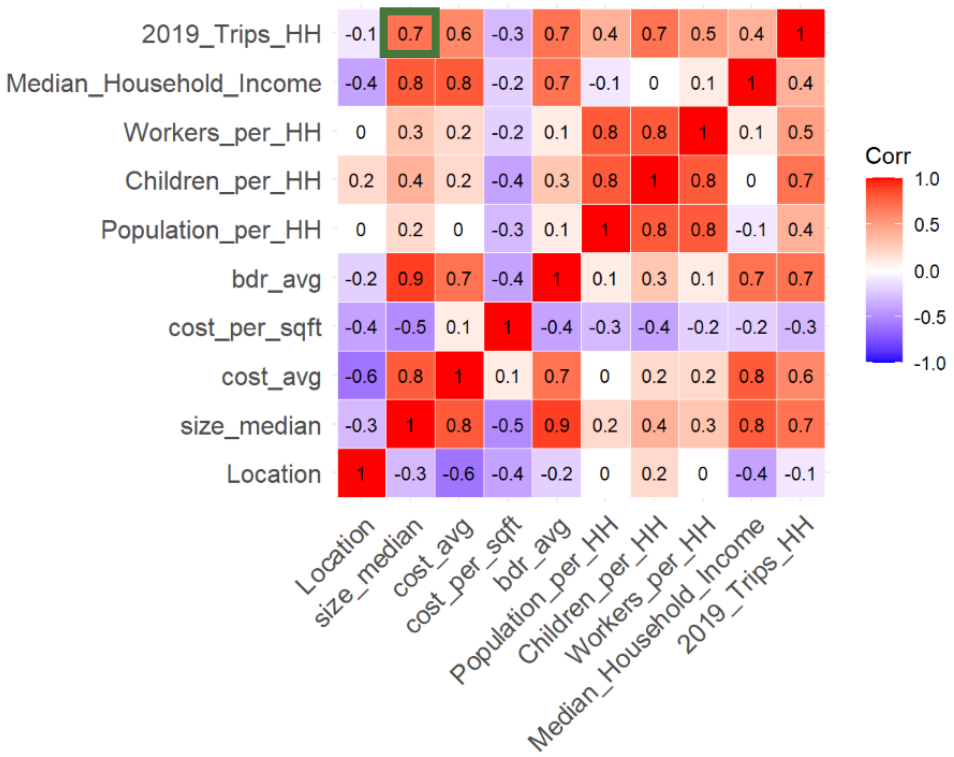


Table 1: Residential Home Data and Sources

Value	Source
Median Home Size	Zillow
Average Home Rooms	Zillow
Average Household Population	ACS 5 year and 1 year
Average Number of Children	ACS 5 year and 1 year
Average Number of Workers	ACS 5 year and 1 year
TUMF Zone	WRCOG
Average Household Income	ACS 5 year and 1 year

Table 2: Daily Total Vehicle Trip Regression Equation Summary

Home Size Variable	Coefficient	Constant	R-Squared
All home sizes			
Median Home Size (KSF)	2.26	4.22	0.507
Homes 2.5 KSF or smaller			
Median Home Size (KSF)	4.11	1.22	0.553
Homes over 2.5 KSF			
Median Home Size (KSF)	-0.3	11.57	0.007

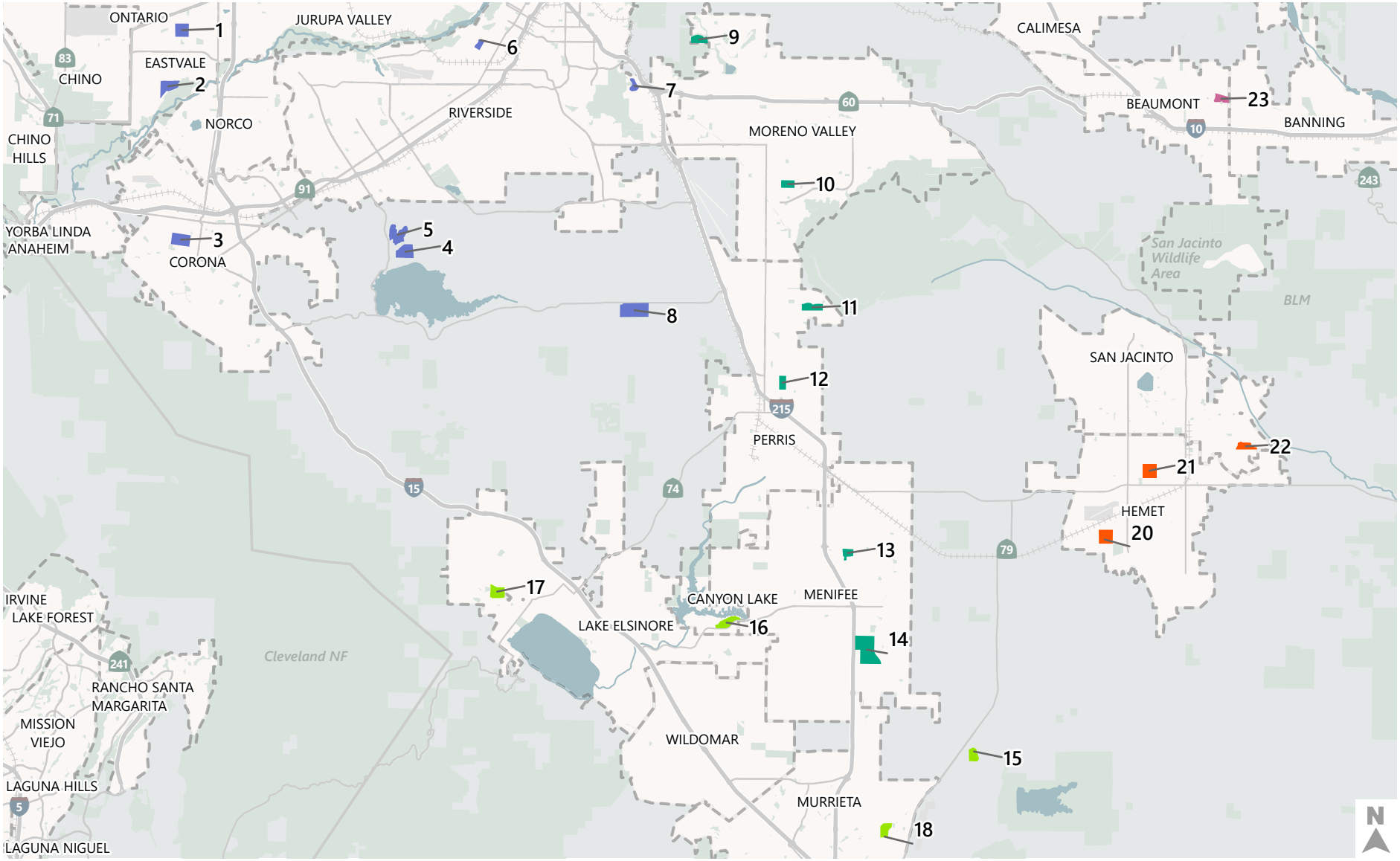
Notes: KSF= Thousand Square Feet

Regression Equations

All home sizes.
Daily total vehicle trips = 2.26 * Median Home Size in Thousand Square Feet + 4.22

Homes l 2.50 thousand square feet or less.
Daily total vehicle trips = 4.11 * Median Home Size in Thousand Square Feet + 1.22

Homes more than 2.50 thousand square feet.
Daily total vehicle trips = -0.3 * Median Home Size in Thousand Square Feet + 11.57



Study Location by TUMF Zone

- Central
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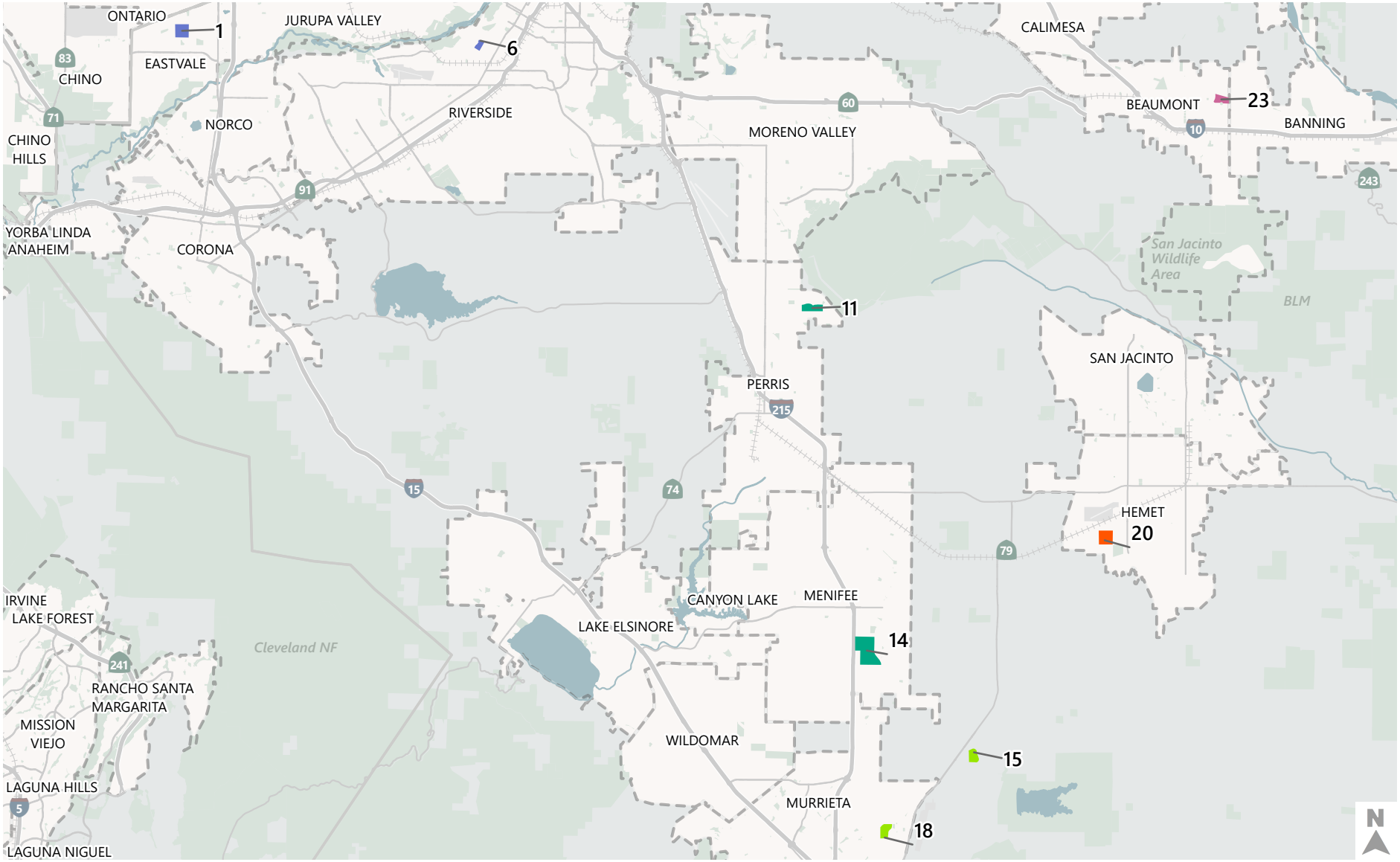
- Pass
- Southwest

City Boundaries

Figure 1

StreetLight Data Collection Locations



Study Location by TUMF Zone

- Central
- Hemet/San Jacinto
- Northwest
- Pass
- Southwest

City Boundaries

Figure 2

Traffic Count Data Collection Locations

Attachment 2

Multi-Family Residential Trip Generation Study Memo

FEHR PEERS

Memorandum

Date: May 12, 2023

To: Christopher Gray - WRCOG
Chris Tzeng – WRCOG

From: Jason D. Pack, P.E.
Delia Votsch, P.E.
Raymond Poss

Subject: **DRAFT TUMF Multifamily Residential Counts and Trip Generation**
Task Order No. 2022-65-1400-004-007

OC23-0955

This memorandum summarizes the goals, data collection and analyses, key findings, and recommendations regarding the evaluation of multifamily development characteristics and trip generation. This memo is intended to inform the Western Riverside Council of Governments (WRCOG) Transportation Uniform Mitigation Fee (TUMF) guidelines on the relationship between multifamily trip generation, number of bedrooms per dwelling unit, and average size of dwelling unit.

Key Findings

Questions answered through the data analyses and findings are listed below.

- Are the size of the dwelling unit or number of bedrooms in a dwelling unit key predictors of residential multifamily trip generation? **No, the size of dwelling unit nor the number of bedrooms in a dwelling unit are key predicters of trip generation.**
- Are there other characteristics that have a higher predictive relationship than the number of dwelling units? **No, the number of dwelling units has the highest predictive relationship.**
- Are there recommended changes to the TUMF program or fee calculations based on the findings? If so, what is the potential impact to the TUMF collection process and to developers? **No, it is not recommended that TUMF be updated from basing multifamily development fees on number of dwelling units.**

Background

Western Riverside Council of Governments (WRCOG) provides local roadway funding in part through collection of fees through the Transportation Uniform Mitigation Fee (TUMF) program as part of new developments. These fees vary based on the level of impact the new development will have on traffic as determined by the characteristics of the development. The impact fee for multifamily residential developments is currently determined by the number of dwelling units (DUs).

As required by new state legislature (AB-602), agencies are required to account for the size of the dwelling unit when developing impact fees. As such, Fehr & Peers was contracted to evaluate the relationship between trips generated by multifamily apartment complexes to determine if attributes other than number of dwelling units, including number bedrooms per dwelling unit and average size of dwelling unit, significantly affect trip generation.

Data Collection

This section describes the data used to evaluate multifamily trip generation, including the selection of locations and methods for collecting trip data, apartment characteristics, and regional Census data.

Study Selection Area

To evaluate the effect of dwelling unit size and number of dwelling unit bedrooms on multifamily trip generation, the following criteria were used to select the apartment complexes within Western Riverside County:

- Minimum of one complex per TUMF Zone (five zones total)
- Complexes not within a Transit Priority Area (TPA)
- Complexes not near a college or university

Through discussions and review of each location with WRCOG, Fehr & Peers narrowed the study locations to 12 multifamily apartment complexes as shown on **Figure 1**.

Travel Activity

Trips were observed at each of the 12 complexes by collecting vehicle counts during typical weekdays at each driveway over a three-day period. Trip observations for each complex were averaged over the three-day period and summarized below in **Table 1** for Daily, AM Peak Period, and PM Peak Period counts. Raw data counts taken over the three-day period can be found **Appendix A**.

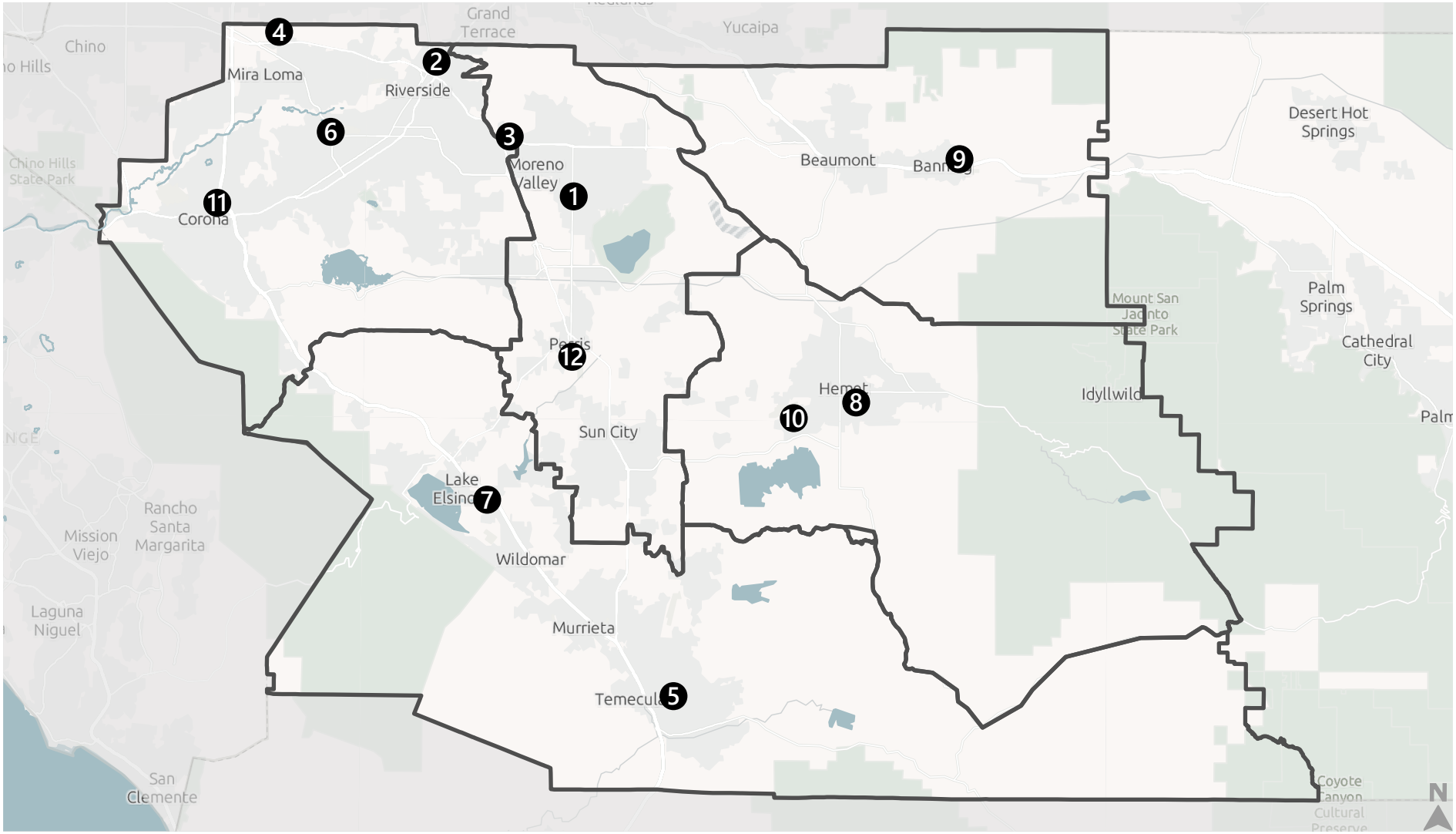


Figure 1

WRCOG TUMF Multifamily Trip Generation Study Sites

Table 1: Multifamily Complex Trip Observations

Study Site #	Location Name	Daily Trips			AM Peak			PM Peak		
		Trips	% In	% Out	Trip Rate	In %	Out %	Trip Rate	In %	Out %
1	Oakwood Apartments	2,089	50%	50%	168	40%	60%	170	56%	44%
2	Springbrook Park Apartments	841	50%	50%	68	34%	66%	69	58%	42%
3	Vista Springs Apartments	1,117	49%	51%	106	36%	64%	82	55%	45%
4	Vesada Apartment Homes	1,625	50%	50%	126	35%	65%	126	62%	38%
5	Morning Ridge Apartments	1,130	51%	49%	88	30%	70%	102	59%	41%
6	Stonegate Apartments	952	56%	44%	67	42%	58%	81	64%	36%
7	River's Edge Apartment Homes	1,045	50%	50%	93	34%	66%	91	57%	43%
8	Mayberry Colony Apartments	616	50%	50%	49	39%	61%	54	52%	48%
9	Summit Ridge Apartments	777	50%	50%	67	39%	61%	57	54%	46%
10	Riverdale Apartments	737	50%	50%	65	32%	68%	67	57%	43%
11	Parkridge Meadows Apartments	744	50%	50%	58	34%	66%	54	63%	37%
12	Hunt Club Apartments	1,422	51%	49%	143	36%	64%	106	60%	40%

Source: Fehr & Peers (2023)

Residential Characteristics

Apartment characteristics, listed below, were obtained from a variety of sources, including conversations with apartment leasing agents, property webpages, Census data, Zillow.com, and the Assessor's Office of Riverside County web page.

- Number of dwelling units
- Number of apartment styles (i.e., number of one-bedroom units, two-bedroom units, etc.)
- Average size (square footage) of dwelling units
- Average number of bedrooms per dwelling unit
- Median monthly household income by Census Tract
- Average number of persons per household by Census Tract
- Proximity to nearest public school

The average size of each dwelling unit was calculated by dividing the total size of all combined dwelling units by the total number of dwelling units. Similarly, the average number of bedrooms per dwelling unit were calculated by dividing the total number of bedrooms by the number of dwelling units. These apartment characteristics are shown below in **Table 2**. Specific information related to each apartment complex are provided in **Appendix B**.

Table 2: Apartment Characteristics

Study Site #	Location Name	# of DUs	Average Size of DU (Sq. Ft.)	Average Number of Bedrooms	Median Monthly Household Income (Dollars)	Average # of Persons per Household	Proximity to Nearest School (Mi)
1	Oakwood Apartments	241	1,040	3.0	$65,240	3.92	0.2
2	Springbrook Park Apartments	112	955	2.0	$77,148	3.6	0.5
3	Vista Springs Apartments	212	822	1.5	$74,333	3.3	0.7
4	Vesada Apartment Homes	261	938	1.7	$79,199	4.53	1.1
5	Morning Ridge Apartments	200	850	1.6	$63,279	2.73	0.6
6	Stonegate Apartments	160	802	1.5	$68,250	3.14	0.7
7	River's Edge Apartment Homes	184	918	1.5	$78,222	3.74	0.4
8	Mayberry Colony Apartments	89	896	1.6	$51,653	3.71	0.7
9	Summit Ridge Apartments	80	529	2.5	$43,100	3.47	0.3
10	Riverdale Apartments	96	1,015	2.6	$87,532	4.33	0.3
11	Parkridge Meadows Apartments	88	771	2.0	$74,886	3.53	0.1
12	Hunt Club Apartments	203	962	2.0	$58,200	4.5	0.8

Sources: Fehr & Peers (2023), U.S. Census Bureau 5-Year American Community Survey (2016-2021), Zillow.com (2023), Riverside County Assessor (2023)

Trip Generation Analysis

Using the data described above, a statistical analysis, including a regression and correlation assessment, was performed to evaluate if a statistically significant relationship exists between multifamily trip generation and the following variables to determine if an update to the development fee calculation was justified.

- Number of dwelling units
- Average size of dwelling units
- Average number of bedrooms per dwelling unit
- Median monthly income
- Average number of persons per household
- Proximity to nearest public school

Correlation Analysis

A correlation analysis was also performed to determine if a one-to-one relationship exists between daily trip generation and an apartment characteristic listed above. **Figure 2**, below, shows the results of the correlation analysis, with darker green cells representing a stronger, positive correlation.

The correlation analysis indicates that daily trip generation has a **strong, positive correlation with the number of dwelling units** and a **moderate, positive correlation with average size of dwelling unit**. All other variables are indicated to have a weak or very weak positive correlation with trip generation.

Figure 2: Trip Generation Correlation Matrix

	Total Vehicles	# of DUs	Average # of Bedrooms per DU	Average DU Size (Sq. Ft.)	Median Monthly Income	Average Household Size	Proximity to Nearest School
Total Vehicles	1.00	0.87	0.29	0.46	0.06	0.34	0.21
# of DUs	0.87	1.00	-0.17	0.43	0.20	0.18	0.51
Average # of Bedrooms per DU	0.29	-0.17	1.00	0.13	-0.09	0.36	-0.60
Average DU Size (Sq. Ft.)	0.46	0.43	0.13	1.00	0.55	0.51	0.16
Median Monthly Income	0.06	0.20	-0.09	0.55	1.00	0.25	-0.02
Average Household Size	0.34	0.18	0.36	0.51	0.25	1.00	0.21
Proximity to Nearest School	0.21	0.51	-0.60	0.16	-0.02	0.21	1.00

Source: Fehr & Peers (2023)

Regression Analysis

An ordinary least squares regression at a 95% confidence interval was performed on the above variables against daily trip generation to screen out variables that yielded statistically insignificant results. The results of the first regression are shown in **Table 3**.

Table 3: Regression Results

Variable	P-Value[1]	Statistically Significant
Number of dwelling units	<0.05	Yes
Average size (square footage) of dwelling units	>0.05	No
Average number of bedrooms per dwelling unit	<0.05	Yes
Median monthly household income	>0.05	No
Average number of persons per household	>0.05	No
Proximity to nearest public school	>0.05	No

Source: Fehr & Peers (2023)

1. P-Values < 0.05 are considered statistically significant. P-Values > 0.05 are considered statistically insignificant.

A subsequent regression was run with the least statistically significant (highest P-value) variable removed. This process was repeated until all remaining variables yielded statistically significant P-values (less than 0.05), resulting in the number of dwelling units and average size of dwelling unit as the remaining variables. The P-Values for these variables are shown below in **Table 4**.

Table 4: Filtered Regression Results

Variable	P-Value[1]	Statistically Significant
Number of dwelling units	$4.8x10^{-07}$	Yes
Average size (square footage) of dwelling units	0.0002	Yes

Source: Fehr & Peers (2023)

1. P-Values < 0.05 are considered statistically significant. P-Values > 0.05 are considered statistically insignificant.

The regression analysis indicates that **number of dwelling units** and **average size of dwelling unit are statistically significant predictors of multifamily trip generation**.

To validate these results, a forward stepwise regression was also completed. A forward stepwise regression is completed by beginning with no variables in the model, and then adding them one at a time based on which has the smallest p-value when tested one at a time. This isolates any possible relationships between the variables and further helps confirm if the vehicle trip rate has a statistically valid correlation to the variables tested.

Table 5: Forward Stepwise Regression Results

Variable	Relationship Rank[1]	P-Value[2]	Statistically Significant
Average size (square footage) of dwelling units	4	0.377	Yes
Average number of bedrooms per dwelling unit	1	0.0008	No
Median monthly household income	3	0.249	Yes
Average number of persons per household	5	0.509	Yes
Proximity to nearest public school	2	0.0239	No

Source: Fehr & Peers (2023)

1. Relationship rank indicates which variable has the strongest correlation with daily vehicle trip rate.
2. P-Values < 0.05 are considered statistically significant. P-Values > 0.05 are considered statistically insignificant.

As noted in Table 5, the variables with the strongest relationship to daily vehicle trip rate (number of bedrooms and distance to nearest school) are not statistically significant.

Trip Generation Results

In both the regression and correlation analyses, the number of dwelling units was found to be the strongest predictor of daily trip generation. All other variables had positive but weaker correlations to daily trip generation, and none were found to be statistically significant predictors of multifamily daily trip generation under both regression analyses.

Table 6: Summary of Trip Generation Results

Variable	Overall Relationship Ranking[1]	Statistically Significant	
		Filtered Regression	Forward Regression
Number of Dwelling Units	1	Yes	Yes
Average number of bedrooms per dwelling unit	2	Yes	No
Proximity to nearest public school	3	No	No
Average size (square footage) of dwelling units	4	No	Yes
Average number of persons per household	5	No	Yes
Median monthly household income	6	No	Yes

Source: Fehr & Peers (2023)

1. Overall relationship rank indicates which variable has the strongest relationship with daily vehicle trip rate under the correlation and forward stepwise regression analyses.

Recommendations and Next Steps

The results of this statistical analysis indicate that the best predictor of trip generation for multifamily apartment complexes in Western Riverside County is the number of dwelling units (the current basis for development fee calculation). Although other variables showed a positive correlation with trip generation, none yielded as strong a relationship. Based on this statistical analysis, it is not recommended that these other variables be incorporated into the TUMF program.

Appendix A: Three-Day Trip Observations

A021323

Study Site 1 - Oakwood Apartments

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS79 Southern Dwy east of Perris.

AM	IN					
TIME	1	2	3	4	5	TOTAL
0:00	1	0	0	0	0	1
0:15	0	0	0	0	0	0
0:30	1	0	0	0	0	1
0:45	0	0	0	0	0	0
1:00	1	0	0	0	0	1
1:15	0	0	0	0	0	0
1:30	1	0	0	0	0	1
1:45	0	0	0	0	0	0
2:00	0	0	0	0	0	0
2:15	0	0	0	0	0	0
2:30	0	0	0	0	0	0
2:45	0	0	0	0	0	0
3:00	0	0	0	0	0	0
3:15	0	0	0	0	0	0
3:30	1	0	0	0	0	1
3:45	0	0	0	0	0	0
4:00	0	0	0	0	0	0
4:15	0	0	0	0	0	0
4:30	0	0	0	0	0	0
4:45	0	0	0	0	0	0
5:00	0	0	0	0	0	0
5:15	1	0	0	0	0	1
5:30	0	0	0	0	0	0
5:45	0	0	0	0	0	0
6:00	1	0	0	0	0	1
6:15	0	0	0	0	0	0
6:30	0	0	0	0	0	0
6:45	0	0	0	0	0	0
7:00	1	0	0	0	0	1
7:15	0	3	0	0	0	3
7:30	0	0	0	0	0	0
7:45	0	0	0	0	0	0
8:00	0	0	0	0	0	0
8:15	0	0	0	0	0	0
8:30	0	0	0	0	0	0
8:45	0	0	0	0	0	0
9:00	0	0	0	0	0	0
9:15	2	0	0	0	0	2
9:30	2	1	0	0	0	3
9:45	0	0	0	0	0	0
10:00	1	1	0	0	0	2
10:15	0	0	0	0	0	0
10:30	0	0	0	0	0	0
10:45	1	0	0	0	0	1
11:00	1	0	0	0	0	1
11:15	1	0	0	0	0	1
11:30	0	0	0	0	0	0
11:45	1	0	0	0	0	1
TOTAL	17	5	0	0	0	22

AM PEAK HOUR	9:15 AM
AM PEAK VOLUME	7

PM	IN					
Time	1	2	3	4	5	TOTAL
12:00	1	0	0	0	0	1
12:15	0	0	0	0	0	0
12:30	1	0	1	0	0	2
12:45	0	1	0	0	0	1
13:00	0	0	0	0	0	0
13:15	0	0	0	0	0	0
13:30	0	0	0	0	0	0
13:45	2	0	0	0	0	2
14:00	0	0	0	0	0	0
14:15	0	0	0	0	0	0
14:30	0	0	0	0	0	0
14:45	0	0	0	0	0	0
15:00	1	0	0	0	0	1
15:15	0	2	0	0	0	2
15:30	2	2	0	0	0	4
15:45	2	0	0	0	0	2
16:00	1	0	0	0	0	1
16:15	2	0	0	0	0	2
16:30	1	0	0	0	0	1
16:45	0	0	0	0	0	0
17:00	2	0	0	0	0	2
17:15	0	0	0	0	0	0
17:30	1	0	0	0	0	1
17:45	1	0	0	0	0	1
18:00	0	0	0	0	0	0
18:15	2	0	0	0	0	2
18:30	1	0	0	0	0	1
18:45	0	0	0	0	0	0
19:00	3	1	0	0	0	4
19:15	0	0	0	0	0	0
19:30	0	0	0	0	0	0
19:45	1	0	0	0	0	1
20:00	0	0	0	0	0	0
20:15	1	0	0	0	0	1
20:30	0	0	0	0	0	0
20:45	0	0	0	0	0	0
21:00	0	0	0	0	0	0
21:15	1	0	0	0	0	1
21:30	1	0	0	0	0	1
21:45	0	0	0	0	0	0
22:00	1	0	0	0	0	1
22:15	0	0	0	0	0	0
22:30	1	0	0	0	0	1
22:45	0	0	0	0	0	0
23:00	0	0	0	0	0	0
23:15	0	0	0	0	0	0
23:30	0	0	0	0	0	0
23:45	0	0	0	0	0	0
TOTAL	29	6	1	0	0	36

AM PEAK HOUR	3:30 PM
AM PEAK VOLUME	9

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

TOTAL: AM+PM	46	11	1	0	0	58
% OF TOTAL	79.3%	19.0%	1.7%	0.0%	0.0%	100.0%
AM PEAK	1	3	0	0	0	4
PM PEAK	5	0	0	0	0	5

A13123

Study Site 1 - Oakwood Apartments

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS79 Southern Dwy east of Perris.

AM	OUT						PM	OUT					
TIME	1	2	3	4	5	TOTAL	Time	1	2	3	4	5	TOTAL
0:00	1	0	0	0	0	1	12:00	1	0	0	0	0	1
0:15	0	0	0	0	0	0	12:15	0	0	0	0	0	0
0:30	1	0	0	0	0	1	12:30	1	0	1	0	0	2
0:45	0	0	0	0	0	0	12:45	0	0	0	0	0	0
1:00	1	0	0	0	0	1	13:00	0	1	0	0	0	1
1:15	0	0	0	0	0	0	13:15	0	0	0	0	0	0
1:30	1	0	0	0	0	1	13:30	0	0	0	0	0	0
1:45	0	0	0	0	0	0	13:45	2	0	0	0	0	2
2:00	0	0	0	0	0	0	14:00	0	0	0	0	0	0
2:15	0	0	0	0	0	0	14:15	0	0	0	0	0	0
2:30	0	0	0	0	0	0	14:30	0	0	0	0	0	0
2:45	0	0	0	0	0	0	14:45	0	0	0	0	0	0
3:00	0	0	0	0	0	0	15:00	1	0	0	0	0	1
3:15	0	0	0	0	0	0	15:15	0	2	0	0	0	2
3:30	0	0	0	0	0	0	15:30	1	1	0	0	0	2
3:45	1	0	0	0	0	1	15:45	3	1	0	0	0	4
4:00	0	0	0	0	0	0	16:00	1	0	0	0	0	1
4:15	0	0	0	0	0	0	16:15	3	0	0	0	0	3
4:30	0	0	0	0	0	0	16:30	1	0	0	0	0	1
4:45	0	0	0	0	0	0	16:45	0	0	0	0	0	0
5:00	1	0	0	0	0	1	17:00	2	0	0	0	0	2
5:15	1	0	0	0	0	1	17:15	0	0	0	0	0	0
5:30	0	0	0	0	0	0	17:30	1	0	0	0	0	1
5:45	0	0	0	0	0	0	17:45	1	0	0	0	0	1
6:00	1	0	0	0	0	1	18:00	1	0	0	0	0	1
6:15	0	0	0	0	0	0	18:15	1	0	0	0	0	1
6:30	0	0	0	0	0	0	18:30	3	0	0	0	0	3
6:45	0	0	0	0	0	0	18:45	0	0	0	0	0	0
7:00	1	0	0	0	0	1	19:00	2	1	0	0	0	3
7:15	0	3	0	0	0	3	19:15	1	0	0	0	0	1
7:30	0	0	0	0	0	0	19:30	0	0	0	0	0	0
7:45	0	0	0	0	0	0	19:45	1	0	0	0	0	1
8:00	0	0	0	0	0	0	20:00	0	0	0	0	0	0
8:15	0	0	0	0	0	0	20:15	1	0	0	0	0	1
8:30	0	0	0	0	0	0	20:30	0	0	0	0	0	0
8:45	0	0	0	0	0	0	20:45	0	0	0	0	0	0
9:00	0	0	0	0	0	0	21:00	0	0	0	0	0	0
9:15	2	0	0	0	0	2	21:15	1	0	0	0	0	1
9:30	2	1	0	0	0	3	21:30	0	0	0	0	0	0
9:45	0	0	0	0	0	0	21:45	1	0	0	0	0	1
10:00	1	1	0	0	0	2	22:00	1	0	0	0	0	1
10:15	0	0	0	0	0	0	22:15	0	0	0	0	0	0
10:30	0	0	0	0	0	0	22:30	1	0	0	0	0	1
10:45	2	0	0	0	0	2	22:45	0	0	0	0	0	0
11:00	1	0	0	0	0	1	23:00	0	0	0	0	0	0
11:15	0	0	0	0	0	0	23:15	0	0	0	0	0	0
11:30	1	0	0	0	0	1	23:30	0	0	0	0	0	0
11:45	1	0	0	0	0	1	23:45	0	0	0	0	0	0
TOTAL	19	5	0	0	0	24	TOTAL	32	6	1	0	0	39

AM PEAK HOUR	9:15 AM
AM PEAK VOLUME	7

AM PEAK HOUR	3:30 PM
AM PEAK VOLUME	10

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

TOTAL: AM+PM	51	11	1	0	0	63
% OF TOTAL	81.0%	17.5%	1.6%	0.0%	0.0%	100.0%
AM PEAK	1	3	0	0	0	4
PM PEAK	6	0	0	0	0	6

A021323

Study Site 1 - Oakwood Apartments

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS80 Northern Dwy east of Perris.

AM	IN						PM	IN					
TIME	1	2	3	4	5	TOTAL	Time	1	2	3	4	5	TOTAL
0:00	9	0	0	0	0	9	12:00	35	0	0	0	0	35
0:15	6	0	0	0	0	6	12:15	42	1	0	0	0	43
0:30	20	0	0	0	0	20	12:30	36	1	1	0	0	38
0:45	12	0	0	0	0	12	12:45	58	0	0	0	0	58
1:00	16	0	0	0	0	16	13:00	44	0	0	0	0	44
1:15	5	0	0	0	0	5	13:15	39	1	0	0	0	40
1:30	5	0	0	0	0	5	13:30	38	0	0	0	0	38
1:45	7	0	0	0	0	7	13:45	55	0	0	0	0	55
2:00	7	0	0	0	0	7	14:00	44	0	0	0	0	44
2:15	2	0	0	0	0	2	14:15	65	0	0	0	0	65
2:30	2	0	0	0	0	2	14:30	51	0	0	0	0	51
2:45	4	0	0	0	0	4	14:45	63	0	0	0	0	63
3:00	1	0	0	0	0	1	15:00	53	0	0	0	0	53
3:15	2	0	0	0	0	2	15:15	64	2	0	0	0	66
3:30	5	0	0	0	0	5	15:30	66	2	0	0	0	68
3:45	0	0	0	0	0	0	15:45	75	1	0	0	0	76
4:00	6	0	0	0	0	6	16:00	73	0	0	0	0	73
4:15	9	0	0	0	0	9	16:15	67	0	0	0	0	67
4:30	1	0	0	0	0	1	16:30	62	0	0	0	0	62
4:45	2	0	0	0	0	2	16:45	80	0	0	0	0	80
5:00	8	0	0	0	0	8	17:00	48	2	0	0	0	50
5:15	7	0	0	0	0	7	17:15	68	0	0	0	0	68
5:30	5	0	0	0	0	5	17:30	53	0	0	0	0	53
5:45	11	0	0	0	0	11	17:45	60	0	0	0	0	60
6:00	9	0	0	0	0	9	18:00	79	0	0	0	0	79
6:15	11	0	0	0	0	11	18:15	70	0	0	0	0	70
6:30	8	0	0	0	0	8	18:30	60	0	0	0	0	60
6:45	13	0	0	0	0	13	18:45	54	0	0	0	0	54
7:00	10	0	0	0	0	10	19:00	53	0	0	0	0	53
7:15	29	0	0	0	0	29	19:15	43	0	0	0	0	43
7:30	48	0	0	0	0	48	19:30	38	0	0	0	0	38
7:45	70	0	0	0	0	70	19:45	35	0	0	0	0	35
8:00	52	0	0	0	0	52	20:00	48	0	0	0	0	48
8:15	27	0	0	0	0	27	20:15	38	0	0	0	0	38
8:30	52	0	0	0	0	52	20:30	38	0	0	0	0	38
8:45	36	0	1	0	0	37	20:45	32	0	0	0	0	32
9:00	21	1	0	0	0	22	21:00	47	0	0	0	0	47
9:15	19	1	0	0	0	20	21:15	36	0	0	0	0	36
9:30	22	0	0	0	0	22	21:30	35	0	0	0	0	35
9:45	29	1	0	0	0	30	21:45	25	0	0	0	0	25
10:00	28	1	0	0	0	29	22:00	35	0	0	0	0	35
10:15	24	0	0	0	0	24	22:15	24	0	0	0	0	24
10:30	24	0	0	0	0	24	22:30	23	0	0	0	0	23
10:45	35	0	0	0	0	35	22:45	21	0	0	0	0	21
11:00	31	0	0	0	0	31	23:00	16	0	0	0	0	16
11:15	16	0	0	0	0	16	23:15	30	0	0	0	0	30
11:30	20	0	0	0	0	20	23:30	10	0	0	0	0	10
11:45	29	3	0	0	0	32	23:45	17	0	0	0	0	17
TOTAL	815	7	1	0	0	823	TOTAL	2,246	10	1	0	0	2,257

AM PEAK HOUR	7:45 AM
AM PEAK VOLUME	201

AM PEAK HOUR	3:30 PM
AM PEAK VOLUME	284

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

TOTAL: AM+PM	3,061	17	2	0	0	3,080
% OF TOTAL	99.4%	0.6%	0.1%	0.0%	0.0%	100.0%
AM PEAK	201	0	0	0	0	201
PM PEAK	282	0	0	0	0	282

A13123

Study Site 1 - Oakwood Apartments

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS80 Northern Dwy east of Perris.

AM	OUT						PM	OUT					
TIME	1	2	3	4	5	TOTAL	Time	1	2	3	4	5	TOTAL
0:00	5	1	0	0	0	6	12:00	59	1	0	0	0	60
0:15	8	0	0	0	0	8	12:15	38	2	0	0	0	40
0:30	7	0	0	0	0	7	12:30	34	0	0	0	0	34
0:45	7	0	0	0	0	7	12:45	32	1	0	0	0	33
1:00	5	1	0	0	0	6	13:00	40	0	0	0	0	40
1:15	6	0	0	0	0	6	13:15	47	0	1	0	0	48
1:30	3	0	0	0	0	3	13:30	51	1	0	0	0	52
1:45	5	0	0	0	0	5	13:45	46	0	0	0	0	46
2:00	3	0	0	0	0	3	14:00	60	0	0	0	0	60
2:15	2	0	0	0	0	2	14:15	49	0	0	0	0	49
2:30	1	0	0	0	0	1	14:30	52	0	0	0	0	52
2:45	3	0	0	0	0	3	14:45	48	0	0	0	0	48
3:00	2	0	0	0	0	2	15:00	57	0	0	0	0	57
3:15	4	0	0	0	0	4	15:15	56	0	0	0	0	56
3:30	5	0	0	0	0	5	15:30	61	1	0	0	0	62
3:45	10	0	0	0	0	10	15:45	37	0	0	0	0	37
4:00	14	0	0	0	0	14	16:00	71	0	0	0	0	71
4:15	17	0	0	0	0	17	16:15	39	0	0	0	0	39
4:30	20	0	0	0	0	20	16:30	53	1	0	0	0	54
4:45	11	0	0	0	0	11	16:45	53	0	0	0	0	53
5:00	15	0	0	0	0	15	17:00	63	0	0	0	0	63
5:15	19	0	0	0	0	19	17:15	46	1	0	0	0	47
5:30	21	0	0	0	0	21	17:30	48	0	0	0	0	48
5:45	23	0	0	0	0	23	17:45	42	0	0	0	0	42
6:00	28	0	0	0	0	28	18:00	48	0	0	0	0	48
6:15	29	0	0	0	0	29	18:15	57	0	0	0	0	57
6:30	27	0	0	0	0	27	18:30	30	0	0	0	0	30
6:45	38	0	0	0	0	38	18:45	33	0	0	0	0	33
7:00	48	0	0	0	0	48	19:00	41	0	0	0	0	41
7:15	79	0	0	0	0	79	19:15	20	0	0	0	0	20
7:30	82	0	0	0	0	82	19:30	32	1	0	0	0	33
7:45	78	0	0	0	0	78	19:45	33	0	0	0	0	33
8:00	57	0	0	0	0	57	20:00	33	0	0	0	0	33
8:15	61	0	0	0	0	61	20:15	31	0	0	0	0	31
8:30	36	1	0	0	0	37	20:30	32	1	0	0	0	33
8:45	34	0	0	0	0	34	20:45	35	0	0	0	0	35
9:00	27	0	0	0	0	27	21:00	29	0	0	0	0	29
9:15	33	0	0	0	0	33	21:15	24	0	0	0	0	24
9:30	27	2	1	0	0	30	21:30	28	0	0	0	0	28
9:45	44	1	0	0	0	45	21:45	24	0	0	0	0	24
10:00	28	1	0	0	0	29	22:00	19	0	0	0	0	19
10:15	39	1	0	0	0	40	22:15	14	0	0	0	0	14
10:30	27	2	0	0	0	29	22:30	16	0	0	0	0	16
10:45	32	0	0	0	0	32	22:45	16	0	0	0	0	16
11:00	36	0	0	0	0	36	23:00	16	0	0	0	0	16
11:15	37	0	0	0	0	37	23:15	19	0	0	0	0	19
11:30	26	0	0	0	0	26	23:30	8	0	0	0	0	8
11:45	39	1	0	0	0	40	23:45	13	0	0	0	0	13
TOTAL	1,208	11	1	0	0	1,220	TOTAL	1,833	10	1	0	0	1,844

AM PEAK HOUR	7:15 AM
AM PEAK VOLUME	296

AM PEAK HOUR	3:15 PM
AM PEAK VOLUME	226

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

TOTAL: AM+PM	3,041	21	2	0	0	3,064
% OF TOTAL	99.2%	0.7%	0.1%	0.0%	0.0%	100.0%
AM PEAK	296	0	0	0	0	296
PM PEAK	216	1	0	0	0	217

A021323

Study Site 2 - Springbrook Park Apartments

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS75 Eastern Dwy south of Orange.

AM TIME	IN 1	2	3	4	5	TOTAL	PM Time	IN 1	2	3	4	5	TOTAL
0:00	2	0	0	0	0	2	12:00	6	0	0	0	0	6
0:15	1	0	0	0	0	1	12:15	6	0	0	0	0	6
0:30	1	0	0	0	0	1	12:30	4	0	0	0	0	4
0:45	2	0	0	0	0	2	12:45	7	1	0	0	0	8
1:00	1	0	0	0	0	1	13:00	7	0	0	0	0	7
1:15	1	0	0	0	0	1	13:15	7	0	0	0	0	7
1:30	1	0	0	0	0	1	13:30	8	0	0	0	0	8
1:45	1	0	0	0	0	1	13:45	10	0	0	0	0	10
2:00	0	0	0	0	0	0	14:00	8	0	0	0	0	8
2:15	3	0	0	0	0	3	14:15	6	1	0	0	0	7
2:30	0	0	0	0	0	0	14:30	17	1	0	0	0	18
2:45	0	0	0	0	0	0	14:45	8	0	0	0	0	8
3:00	0	0	0	0	0	0	15:00	11	0	0	0	0	11
3:15	1	0	0	0	0	1	15:15	5	0	0	0	0	5
3:30	1	0	0	0	0	1	15:30	16	0	0	0	0	16
3:45	3	0	0	0	0	3	15:45	22	0	0	0	0	22
4:00	0	0	0	0	0	0	16:00	10	0	0	0	0	10
4:15	1	0	0	0	0	1	16:15	9	2	0	0	0	11
4:30	3	0	0	0	0	3	16:30	14	0	0	0	0	14
4:45	2	0	0	0	0	2	16:45	11	0	0	0	0	11
5:00	1	0	0	0	0	1	17:00	10	0	0	0	0	10
5:15	0	0	0	0	0	0	17:15	12	0	0	0	0	12
5:30	2	0	0	0	0	2	17:30	17	0	0	0	0	17
5:45	3	0	0	0	0	3	17:45	11	0	0	0	0	11
6:00	4	0	0	0	0	4	18:00	5	0	0	0	0	5
6:15	1	3	0	0	0	4	18:15	7	0	0	0	0	7
6:30	0	0	0	0	0	0	18:30	15	0	0	0	0	15
6:45	2	1	0	0	0	3	18:45	13	0	0	0	0	13
7:00	4	2	0	0	0	6	19:00	8	0	0	0	0	8
7:15	4	3	0	0	0	7	19:15	9	0	0	0	0	9
7:30	4	0	0	0	0	4	19:30	9	0	0	0	0	9
7:45	5	0	0	0	0	5	19:45	8	0	0	0	0	8
8:00	5	0	0	0	0	5	20:00	6	0	0	0	0	6
8:15	11	0	0	0	0	11	20:15	10	0	0	0	0	10
8:30	7	0	0	0	0	7	20:30	4	0	0	0	0	4
8:45	6	0	0	0	0	6	20:45	7	0	0	0	0	7
9:00	4	0	0	0	0	4	21:00	4	0	0	0	0	4
9:15	4	0	0	0	0	4	21:15	2	0	0	0	0	2
9:30	1	0	0	0	0	1	21:30	6	0	0	0	0	6
9:45	2	1	0	0	0	3	21:45	8	0	0	0	0	8
10:00	1	0	0	0	0	1	22:00	3	0	0	0	0	3
10:15	6	1	0	0	0	7	22:15	5	0	0	0	0	5
10:30	8	0	0	0	0	8	22:30	5	0	0	0	0	5
10:45	1	0	0	0	0	1	22:45	3	0	0	0	0	3
11:00	4	1	0	0	0	5	23:00	1	0	0	0	0	1
11:15	2	0	1	0	0	3	23:15	5	0	0	0	0	5
11:30	2	0	0	0	0	2	23:30	0	0	0	0	0	0
11:45	10	1	1	0	0	12	23:45	0	0	0	0	0	0
TOTAL	128	13	2	0	0	143	TOTAL	385	5	0	0	0	390

AM PEAK HOUR	8:00 AM
AM PEAK VOLUME	29

AM PEAK HOUR	3:30 PM
AM PEAK VOLUME	59

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

	1	2	3	4	5	TOTAL
TOTAL: AM+PM	513	18	2	0	0	533
% OF TOTAL	96.2%	3.4%	0.4%	0.0%	0.0%	100.0%
AM PEAK	29	0	0	0	0	29
PM PEAK	50	0	0	0	0	50

A13123

Study Site 2 - Springbrook Park Apartments

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS75 Eastern Dwy south of Orange.

AM	OUT						PM	OUT					
TIME	1	2	3	4	5	TOTAL	Time	1	2	3	4	5	TOTAL
0:00	1	0	0	0	0	1	12:00	8	1	0	0	0	9
0:15	0	0	0	0	0	0	12:15	6	0	0	0	0	6
0:30	0	0	0	0	0	0	12:30	6	2	1	0	0	9
0:45	2	0	0	0	0	2	12:45	4	0	0	0	0	4
1:00	0	0	0	0	0	0	13:00	5	0	0	0	0	5
1:15	0	0	0	0	0	0	13:15	6	0	0	0	0	6
1:30	0	0	0	0	0	0	13:30	3	0	0	0	0	3
1:45	0	0	0	0	0	0	13:45	8	0	0	0	0	8
2:00	0	0	0	0	0	0	14:00	12	0	0	0	0	12
2:15	3	0	0	0	0	3	14:15	9	0	0	0	0	9
2:30	2	0	0	0	0	2	14:30	9	0	0	0	0	9
2:45	5	0	0	0	0	5	14:45	8	0	0	0	0	8
3:00	0	0	0	0	0	0	15:00	6	0	0	0	0	6
3:15	4	0	0	0	0	4	15:15	7	0	0	0	0	7
3:30	6	0	0	0	0	6	15:30	9	0	0	0	0	9
3:45	1	0	0	0	0	1	15:45	3	0	0	0	0	3
4:00	3	0	0	0	0	3	16:00	15	0	0	0	0	15
4:15	1	0	0	0	0	1	16:15	11	0	0	0	0	11
4:30	5	0	0	0	0	5	16:30	15	0	0	0	0	15
4:45	7	0	0	0	0	7	16:45	9	0	0	0	0	9
5:00	4	0	0	0	0	4	17:00	5	0	0	0	0	5
5:15	7	0	0	0	0	7	17:15	11	0	0	0	0	11
5:30	3	0	0	0	0	3	17:30	6	0	0	0	0	6
5:45	6	0	0	0	0	6	17:45	10	0	0	0	0	10
6:00	5	0	0	0	0	5	18:00	5	0	0	0	0	5
6:15	9	0	0	0	0	9	18:15	9	0	0	0	0	9
6:30	6	0	0	0	0	6	18:30	5	0	0	0	0	5
6:45	7	0	0	0	0	7	18:45	6	0	0	0	0	6
7:00	5	0	0	0	0	5	19:00	10	0	0	0	0	10
7:15	12	0	0	0	0	12	19:15	10	0	0	0	0	10
7:30	19	0	1	0	0	20	19:30	5	0	0	0	0	5
7:45	19	0	0	0	0	19	19:45	5	0	0	0	0	5
8:00	7	0	0	0	0	7	20:00	5	0	0	0	0	5
8:15	9	0	0	0	0	9	20:15	2	0	0	0	0	2
8:30	4	0	1	0	0	5	20:30	5	0	0	0	0	5
8:45	9	0	0	0	0	9	20:45	3	0	0	0	0	3
9:00	3	0	0	0	0	3	21:00	5	0	0	0	0	5
9:15	6	0	0	0	0	6	21:15	2	0	0	0	0	2
9:30	4	0	0	0	0	4	21:30	9	0	0	0	0	9
9:45	1	0	0	0	0	1	21:45	5	0	0	0	0	5
10:00	5	0	0	0	0	5	22:00	1	0	0	0	0	1
10:15	8	0	0	0	0	8	22:15	3	0	0	0	0	3
10:30	4	0	0	0	0	4	22:30	5	0	0	0	0	5
10:45	3	0	0	0	0	3	22:45	6	0	0	0	0	6
11:00	11	1	0	0	0	12	23:00	3	0	0	0	0	3
11:15	6	0	0	0	0	6	23:15	0	0	0	0	0	0
11:30	4	1	0	0	0	5	23:30	4	0	0	0	0	4
11:45	8	0	0	0	0	8	23:45	2	0	0	0	0	2
TOTAL	234	2	2	0	0	238	TOTAL	306	3	1	0	0	310

AM PEAK HOUR	7:15 AM
AM PEAK VOLUME	58

AM PEAK HOUR	4:00 PM
AM PEAK VOLUME	50

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

TOTAL: AM+PM	540	5	3	0	0	548
% OF TOTAL	98.5%	0.9%	0.5%	0.0%	0.0%	100.0%
AM PEAK	57	0	1	0	0	58
PM PEAK	50	0	0	0	0	50

A021323

Study Site 2 - Springbrook Park Apartments

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS76 Western Dwy south of Orange.

AM	IN						PM	IN					
TIME	1	2	3	4	5	TOTAL	Time	1	2	3	4	5	TOTAL
0:00	2	0	0	0	0	2	12:00	7	1	0	0	0	8
0:15	3	0	0	0	0	3	12:15	11	0	0	0	0	11
0:30	1	0	0	0	0	1	12:30	12	2	1	0	0	15
0:45	3	0	0	0	0	3	12:45	6	0	0	0	0	6
1:00	0	0	0	0	0	0	13:00	13	0	0	0	0	13
1:15	1	0	0	0	0	1	13:15	11	1	0	0	0	12
1:30	0	0	0	0	0	0	13:30	10	0	0	0	0	10
1:45	1	0	0	0	0	1	13:45	9	0	0	0	0	9
2:00	1	0	0	0	0	1	14:00	13	0	0	0	0	13
2:15	0	0	0	0	0	0	14:15	10	0	0	0	0	10
2:30	0	0	0	0	0	0	14:30	13	0	0	0	0	13
2:45	4	0	0	0	0	4	14:45	10	0	0	0	0	10
3:00	0	0	0	0	0	0	15:00	12	0	0	0	0	12
3:15	1	0	0	0	0	1	15:15	13	0	0	0	0	13
3:30	0	0	0	0	0	0	15:30	16	0	0	0	0	16
3:45	0	0	0	0	0	0	15:45	15	0	0	0	0	15
4:00	0	0	0	0	0	0	16:00	13	1	0	0	0	14
4:15	0	0	0	0	0	0	16:15	14	0	0	0	0	14
4:30	2	0	0	0	0	2	16:30	13	0	0	0	0	13
4:45	1	0	0	0	0	1	16:45	14	0	0	0	0	14
5:00	1	0	0	0	0	1	17:00	16	0	0	0	0	16
5:15	5	0	0	0	0	5	17:15	13	0	0	0	0	13
5:30	4	0	0	0	0	4	17:30	24	0	0	0	0	24
5:45	2	0	0	0	0	2	17:45	17	0	0	0	0	17
6:00	5	0	0	0	0	5	18:00	20	0	0	0	0	20
6:15	5	0	0	0	0	5	18:15	15	0	0	0	0	15
6:30	2	0	0	0	0	2	18:30	10	0	0	0	0	10
6:45	1	0	0	0	0	1	18:45	9	0	0	0	0	9
7:00	2	0	0	0	0	2	19:00	18	0	0	0	0	18
7:15	2	0	1	0	0	3	19:15	13	0	0	0	0	13
7:30	7	0	0	0	0	7	19:30	8	0	0	0	0	8
7:45	15	0	0	0	0	15	19:45	7	0	0	0	0	7
8:00	9	0	0	0	0	9	20:00	11	0	0	0	0	11
8:15	6	0	1	0	0	7	20:15	11	0	0	0	0	11
8:30	10	0	0	0	0	10	20:30	7	0	0	0	0	7
8:45	8	0	0	0	0	8	20:45	9	0	0	0	0	9
9:00	10	0	0	0	0	10	21:00	14	0	0	0	0	14
9:15	7	0	0	0	0	7	21:15	11	0	0	0	0	11
9:30	3	1	0	0	0	4	21:30	7	0	0	0	0	7
9:45	3	0	0	0	0	3	21:45	15	0	0	0	0	15
10:00	10	1	0	0	0	11	22:00	5	0	0	0	0	5
10:15	3	0	0	0	0	3	22:15	7	0	0	0	0	7
10:30	8	0	0	0	0	8	22:30	4	0	0	0	0	4
10:45	7	0	0	0	0	7	22:45	5	0	0	0	0	5
11:00	3	0	0	0	0	3	23:00	4	0	0	0	0	4
11:15	7	0	0	0	0	7	23:15	3	0	0	0	0	3
11:30	2	1	0	0	0	3	23:30	7	0	0	0	0	7
11:45	7	0	0	0	0	7	23:45	6	0	0	0	0	6
TOTAL	174	3	2	0	0	179	TOTAL	531	5	1	0	0	537

AM PEAK HOUR	7:45 AM
AM PEAK VOLUME	41

AM PEAK HOUR	5:30 PM
AM PEAK VOLUME	76

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

TOTAL: AM+PM	705	8	3	0	0	716
% OF TOTAL	98.5%	1.1%	0.4%	0.0%	0.0%	100.0%
AM PEAK	40	0	1	0	0	41
PM PEAK	70	0	0	0	0	70

A13123

Study Site 2 - Springbrook Park Apartments

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS76 Western Dwy south of Orange.

AM	OUT					
TIME	1	2	3	4	5	TOTAL
0:00	0	0	0	0	0	0
0:15	1	0	0	0	0	1
0:30	0	0	0	0	0	0
0:45	1	0	0	0	0	1
1:00	0	0	0	0	0	0
1:15	0	0	0	0	0	0
1:30	1	0	0	0	0	1
1:45	0	0	0	0	0	0
2:00	1	0	0	0	0	1
2:15	1	0	0	0	0	1
2:30	0	0	0	0	0	0
2:45	0	0	0	0	0	0
3:00	0	0	0	0	0	0
3:15	1	0	0	0	0	1
3:30	6	0	0	0	0	6
3:45	9	0	0	0	0	9
4:00	4	0	0	0	0	4
4:15	8	0	0	0	0	8
4:30	5	0	0	0	0	5
4:45	6	0	0	0	0	6
5:00	5	0	0	0	0	5
5:15	6	0	0	0	0	6
5:30	6	0	0	0	0	6
5:45	6	0	0	0	0	6
6:00	7	0	0	0	0	7
6:15	5	3	0	0	0	8
6:30	13	0	0	0	0	13
6:45	2	0	0	0	0	2
7:00	7	3	0	0	0	10
7:15	17	3	0	0	0	20
7:30	18	0	0	0	0	18
7:45	24	0	0	0	0	24
8:00	16	0	0	0	0	16
8:15	12	0	0	0	0	12
8:30	17	0	0	0	0	17
8:45	14	0	0	0	0	14
9:00	8	0	0	0	0	8
9:15	9	0	0	0	0	9
9:30	10	1	0	0	0	11
9:45	1	1	0	0	0	2
10:00	13	0	0	0	0	13
10:15	12	2	0	0	0	14
10:30	9	0	0	0	0	9
10:45	6	0	0	0	0	6
11:00	11	0	0	0	0	11
11:15	3	0	0	0	0	3
11:30	5	0	1	0	0	6
11:45	8	1	0	0	0	9
TOTAL	314	14	1	0	0	329

AM PEAK HOUR	7:15 AM
AM PEAK VOLUME	78

PM	OUT					
Time	1	2	3	4	5	TOTAL
12:00	6	0	1	0	0	7
12:15	9	0	0	0	0	9
12:30	9	0	0	0	0	9
12:45	4	0	0	0	0	4
13:00	6	1	0	0	0	7
13:15	11	1	0	0	0	12
13:30	20	0	0	0	0	20
13:45	11	0	0	0	0	11
14:00	13	0	0	0	0	13
14:15	11	0	0	0	0	11
14:30	11	2	0	0	0	13
14:45	9	0	0	0	0	9
15:00	21	0	0	0	0	21
15:15	11	0	0	0	0	11
15:30	9	0	0	0	0	9
15:45	9	0	0	0	0	9
16:00	9	1	0	0	0	10
16:15	8	1	0	0	0	9
16:30	8	1	0	0	0	9
16:45	10	0	0	0	0	10
17:00	3	0	0	0	0	3
17:15	9	0	0	0	0	9
17:30	11	0	0	0	0	11
17:45	11	0	0	0	0	11
18:00	15	0	0	0	0	15
18:15	10	0	0	0	0	10
18:30	9	0	0	0	0	9
18:45	9	0	0	0	0	9
19:00	4	0	0	0	0	4
19:15	9	0	0	0	0	9
19:30	10	0	0	0	0	10
19:45	4	0	0	0	0	4
20:00	7	0	0	0	0	7
20:15	4	0	0	0	0	4
20:30	11	0	0	0	0	11
20:45	5	0	0	0	0	5
21:00	6	0	0	0	0	6
21:15	7	0	0	0	0	7
21:30	3	0	0	0	0	3
21:45	4	0	0	0	0	4
22:00	11	0	0	0	0	11
22:15	2	0	0	0	0	2
22:30	5	0	0	0	0	5
22:45	0	0	0	0	0	0
23:00	3	0	0	0	0	3
23:15	3	0	0	0	0	3
23:30	3	0	0	0	0	3
23:45	1	0	0	0	0	1
TOTAL	384	7	1	0	0	392

AM PEAK HOUR	1:15 PM
AM PEAK VOLUME	56

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

TOTAL: AM+PM	698	21	2	0	0	721
% OF TOTAL	96.8%	2.9%	0.3%	0.0%	0.0%	100.0%
AM PEAK	75	3	0	0	0	78
PM PEAK	35	3	0	0	0	38

A021323

Study Site 3 - Vista Springs Apartments

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS77 Dwy east of Clark

AM TIME	IN 1	2	3	4	5	TOTAL	PM Time	IN 1	2	3	4	5	TOTAL
0:00	4	0	0	0	0	4	12:00	13	0	0	0	0	13
0:15	3	0	0	0	0	3	12:15	3	0	0	0	0	3
0:30	1	0	0	0	0	1	12:30	8	0	0	0	0	8
0:45	5	0	0	0	0	5	12:45	11	0	0	0	0	11
1:00	3	0	0	0	0	3	13:00	8	0	0	0	0	8
1:15	1	0	0	0	0	1	13:15	12	0	0	0	0	12
1:30	0	0	0	0	0	0	13:30	12	0	0	0	0	12
1:45	1	0	0	0	0	1	13:45	6	0	0	0	0	6
2:00	0	0	0	0	0	0	14:00	12	0	1	0	0	13
2:15	1	0	0	0	0	1	14:15	14	0	0	0	0	14
2:30	0	0	0	0	0	0	14:30	11	0	0	0	0	11
2:45	1	0	0	0	0	1	14:45	4	0	0	0	0	4
3:00	0	0	0	0	0	0	15:00	6	0	0	0	0	6
3:15	0	0	0	0	0	0	15:15	11	0	0	0	0	11
3:30	0	0	0	0	0	0	15:30	11	0	0	0	0	11
3:45	1	0	0	0	0	1	15:45	10	0	0	0	0	10
4:00	0	0	0	0	0	0	16:00	5	0	0	0	0	5
4:15	2	0	0	0	0	2	16:15	16	0	0	0	0	16
4:30	2	0	0	0	0	2	16:30	10	0	0	0	0	10
4:45	4	0	0	0	0	4	16:45	13	0	0	0	0	13
5:00	4	0	0	0	0	4	17:00	14	0	0	0	0	14
5:15	2	0	0	0	0	2	17:15	16	0	0	0	0	16
5:30	1	0	0	0	0	1	17:30	10	0	0	0	0	10
5:45	1	0	0	0	0	1	17:45	12	0	0	0	0	12
6:00	0	0	0	0	0	0	18:00	8	0	0	0	0	8
6:15	1	0	0	0	0	1	18:15	10	0	0	0	0	10
6:30	0	0	0	0	0	0	18:30	16	0	0	0	0	16
6:45	1	0	0	0	0	1	18:45	9	0	0	0	0	9
7:00	2	0	0	0	0	2	19:00	8	0	0	0	0	8
7:15	10	0	0	0	0	10	19:15	17	0	0	0	0	17
7:30	18	0	0	0	0	18	19:30	13	0	0	0	0	13
7:45	16	0	0	0	0	16	19:45	4	0	0	0	0	4
8:00	10	0	0	0	0	10	20:00	16	0	0	0	0	16
8:15	10	0	0	0	0	10	20:15	5	0	0	0	0	5
8:30	6	0	0	0	0	6	20:30	13	0	0	0	0	13
8:45	7	0	0	0	0	7	20:45	11	0	0	0	0	11
9:00	5	0	0	0	0	5	21:00	9	0	0	0	0	9
9:15	6	0	0	0	0	6	21:15	11	0	0	0	0	11
9:30	5	0	0	0	0	5	21:30	5	0	0	0	0	5
9:45	4	0	0	0	0	4	21:45	8	0	0	0	0	8
10:00	6	0	0	0	0	6	22:00	8	0	0	0	0	8
10:15	4	1	0	0	0	5	22:15	2	0	0	0	0	2
10:30	3	1	0	0	0	4	22:30	1	0	0	0	0	1
10:45	1	0	0	0	0	1	22:45	6	0	0	0	0	6
11:00	2	0	0	0	0	2	23:00	4	0	0	0	0	4
11:15	3	0	0	0	0	3	23:15	2	0	0	0	0	2
11:30	4	0	0	0	0	4	23:30	0	0	0	0	0	0
11:45	8	0	0	0	0	8	23:45	4	0	0	0	0	4
TOTAL	169	2	0	0	0	171	TOTAL	438	0	1	0	0	439

AM PEAK HOUR	7:30 AM
AM PEAK VOLUME	54

AM PEAK HOUR	4:45 PM
AM PEAK VOLUME	53

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

TOTAL: AM+PM	607	2	1	0	0	610
% OF TOTAL	99.5%	0.3%	0.2%	0.0%	0.0%	100.0%
AM PEAK	54	0	0	0	0	54
PM PEAK	53	0	0	0	0	53

A13123

Study Site 3 - Vista Springs Apartments

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS77 Dwy east of Clark

AM TIME	OUT 1	2	3	4	5	TOTAL	PM Time	OUT 1	2	3	4	5	TOTAL
0:00	1	0	0	0	0	1	12:00	10	0	0	0	0	10
0:15	2	0	0	0	0	2	12:15	13	0	0	0	0	13
0:30	1	0	0	0	0	1	12:30	10	0	0	0	0	10
0:45	2	0	0	0	0	2	12:45	10	1	0	0	0	11
1:00	1	0	0	0	0	1	13:00	11	0	0	0	0	11
1:15	1	0	0	0	0	1	13:15	10	0	0	0	0	10
1:30	3	0	0	0	0	3	13:30	16	0	1	0	0	17
1:45	0	0	0	0	0	0	13:45	19	0	0	0	0	19
2:00	0	0	0	0	0	0	14:00	18	0	0	0	0	18
2:15	0	0	0	0	0	0	14:15	19	0	0	0	0	19
2:30	1	0	0	0	0	1	14:30	10	0	0	0	0	10
2:45	0	0	0	0	0	0	14:45	16	0	0	0	0	16
3:00	1	0	0	0	0	1	15:00	12	0	0	0	0	12
3:15	3	0	0	0	0	3	15:15	13	0	0	0	0	13
3:30	6	0	0	0	0	6	15:30	13	0	0	0	0	13
3:45	1	0	0	0	0	1	15:45	9	0	0	0	0	9
4:00	5	0	0	0	0	5	16:00	8	0	0	0	0	8
4:15	11	0	0	0	0	11	16:15	11	0	0	0	0	11
4:30	4	0	0	0	0	4	16:30	10	0	0	0	0	10
4:45	2	0	0	0	0	2	16:45	8	0	0	0	0	8
5:00	5	0	0	0	0	5	17:00	13	0	0	0	0	13
5:15	8	0	0	0	0	8	17:15	11	0	0	0	0	11
5:30	4	0	0	0	0	4	17:30	8	0	0	0	0	8
5:45	4	0	0	0	0	4	17:45	4	0	0	0	0	4
6:00	10	0	0	0	0	10	18:00	6	0	0	0	0	6
6:15	8	0	0	0	0	8	18:15	7	0	0	0	0	7
6:30	14	0	0	0	0	14	18:30	15	0	0	0	0	15
6:45	8	0	0	0	0	8	18:45	19	1	0	0	0	20
7:00	23	0	0	0	0	23	19:00	7	0	0	0	0	7
7:15	26	0	0	0	0	26	19:15	4	0	0	0	0	4
7:30	27	0	0	0	0	27	19:30	7	0	0	0	0	7
7:45	31	0	0	0	0	31	19:45	5	0	0	0	0	5
8:00	31	0	0	0	0	31	20:00	6	0	0	0	0	6
8:15	21	0	0	0	0	21	20:15	3	0	0	0	0	3
8:30	15	0	0	0	0	15	20:30	2	0	0	0	0	2
8:45	12	0	0	0	0	12	20:45	9	0	0	0	0	9
9:00	9	0	0	0	0	9	21:00	5	0	0	0	0	5
9:15	11	0	0	0	0	11	21:15	7	0	0	0	0	7
9:30	8	0	0	0	0	8	21:30	9	0	0	0	0	9
9:45	12	0	0	0	0	12	21:45	7	0	0	0	0	7
10:00	13	1	0	0	0	14	22:00	6	0	0	0	0	6
10:15	4	1	0	0	0	5	22:15	4	0	0	0	0	4
10:30	8	0	0	0	0	8	22:30	5	0	0	0	0	5
10:45	6	1	0	0	0	7	22:45	0	0	0	0	0	0
11:00	8	0	0	0	0	8	23:00	1	0	0	0	0	1
11:15	6	1	0	0	0	7	23:15	2	0	0	0	0	2
11:30	9	0	0	0	0	9	23:30	0	0	0	0	0	0
11:45	12	0	0	0	0	12	23:45	0	0	0	0	0	0
TOTAL	398	4	0	0	0	402	**TOTAL**	418	2	1	0	0	421

AM PEAK HOUR	7:15 AM
AM PEAK VOLUME	115

AM PEAK HOUR	1:30 PM
AM PEAK VOLUME	73

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

	1	2	3	4	5	TOTAL
TOTAL: AM+PM	816	6	1	0	0	823
% OF TOTAL	99.1%	0.7%	0.1%	0.0%	0.0%	100.0%
AM PEAK	115	0	0	0	0	115
PM PEAK	42	0	0	0	0	42

A021323

Study Site 3 - Vista Springs Apartments

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS78 Dwy north of Box Springs

AM TIME	IN 1	2	3	4	5	TOTAL	PM Time	IN 1	2	3	4	5	TOTAL
0:00	8	0	0	0	0	8	12:00	9	0	0	0	0	9
0:15	5	0	0	0	0	5	12:15	15	0	0	0	0	15
0:30	1	0	0	0	0	1	12:30	17	1	1	0	0	19
0:45	3	0	0	0	0	3	12:45	12	1	0	0	0	13
1:00	1	0	0	0	0	1	13:00	14	0	0	0	0	14
1:15	5	0	0	0	0	5	13:15	16	0	1	0	0	17
1:30	2	0	0	0	0	2	13:30	9	1	0	0	0	10
1:45	4	0	0	0	0	4	13:45	8	0	0	0	0	8
2:00	3	0	0	0	0	3	14:00	20	0	0	0	0	20
2:15	3	0	0	0	0	3	14:15	22	0	0	0	0	22
2:30	2	0	0	0	0	2	14:30	20	0	0	0	0	20
2:45	0	0	0	0	0	0	14:45	11	0	0	0	0	11
3:00	0	0	0	0	0	0	15:00	15	0	0	0	0	15
3:15	1	0	0	0	0	1	15:15	29	0	0	0	0	29
3:30	0	0	0	0	0	0	15:30	27	0	0	0	0	27
3:45	0	0	0	0	0	0	15:45	13	0	0	0	0	13
4:00	3	0	0	0	0	3	16:00	19	0	0	0	0	19
4:15	2	0	0	0	0	2	16:15	21	0	0	0	0	21
4:30	1	0	0	0	0	1	16:30	26	0	0	0	0	26
4:45	2	0	0	0	0	2	16:45	13	0	0	0	0	13
5:00	2	0	0	0	0	2	17:00	23	0	0	0	0	23
5:15	2	0	0	0	0	2	17:15	21	0	0	0	0	21
5:30	1	0	0	0	0	1	17:30	13	0	0	0	0	13
5:45	3	0	0	0	0	3	17:45	17	0	0	0	0	17
6:00	3	0	0	0	0	3	18:00	19	0	0	0	0	19
6:15	0	0	0	0	0	0	18:15	20	0	0	0	0	20
6:30	6	0	0	0	0	6	18:30	16	0	0	0	0	16
6:45	6	0	0	0	0	6	18:45	13	1	0	0	0	14
7:00	7	0	0	0	0	7	19:00	23	0	0	0	0	23
7:15	5	0	0	0	0	5	19:15	16	0	0	0	0	16
7:30	6	0	0	0	0	6	19:30	19	0	0	0	0	19
7:45	14	0	0	0	0	14	19:45	34	0	0	0	0	34
8:00	16	0	0	0	0	16	20:00	15	0	0	0	0	15
8:15	10	0	0	0	0	10	20:15	20	0	0	0	0	20
8:30	20	0	0	0	0	20	20:30	17	0	0	0	0	17
8:45	14	0	0	0	0	14	20:45	21	0	0	0	0	21
9:00	8	0	0	0	0	8	21:00	16	0	0	0	0	16
9:15	5	0	0	0	0	5	21:15	13	0	0	0	0	13
9:30	8	0	0	0	0	8	21:30	7	0	0	0	0	7
9:45	12	1	0	0	0	13	21:45	7	0	0	0	0	7
10:00	12	0	0	0	0	12	22:00	11	0	0	0	0	11
10:15	10	2	0	0	0	12	22:15	3	0	0	0	0	3
10:30	10	2	0	0	0	12	22:30	12	0	0	0	0	12
10:45	8	0	0	0	0	8	22:45	5	0	0	0	0	5
11:00	13	0	0	0	0	13	23:00	7	0	0	0	0	7
11:15	13	1	0	0	0	14	23:15	6	0	0	0	0	6
11:30	13	1	0	0	0	14	23:30	8	0	0	0	0	8
11:45	12	0	0	0	0	12	23:45	10	0	0	0	0	10
TOTAL	285	7	0	0	0	292	TOTAL	748	4	2	0	0	754

AM PEAK HOUR	8:00 AM
AM PEAK VOLUME	60

AM PEAK HOUR	7:00 PM
AM PEAK VOLUME	92

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

TOTAL: AM+PM	1,033	11	2	0	0	1,046
% OF TOTAL	98.8%	1.1%	0.2%	0.0%	0.0%	100.0%
AM PEAK	60	0	0	0	0	60
PM PEAK	83	0	0	0	0	83

A13123

Study Site 3 - Vista Springs Apartments

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS78 Dwy north of Box Springs

AM TIME	OUT 1	2	3	4	5	TOTAL	PM Time	OUT 1	2	3	4	5	TOTAL
0:00	7	0	0	0	0	7	12:00	14	0	0	0	0	14
0:15	8	0	0	0	0	8	12:15	18	0	0	0	0	18
0:30	1	0	0	0	0	1	12:30	9	0	0	0	0	9
0:45	0	0	0	0	0	0	12:45	17	0	0	0	0	17
1:00	0	0	0	0	0	0	13:00	14	1	0	0	0	15
1:15	2	0	0	0	0	2	13:15	8	0	0	0	0	8
1:30	4	0	0	0	0	4	13:30	8	1	1	0	0	10
1:45	0	0	0	0	0	0	13:45	13	0	0	0	0	13
2:00	6	0	0	0	0	6	14:00	12	0	0	0	0	12
2:15	1	0	0	0	0	1	14:15	9	0	0	0	0	9
2:30	1	0	0	0	0	1	14:30	11	0	1	0	0	12
2:45	2	0	0	0	0	2	14:45	20	0	0	0	0	20
3:00	0	0	0	0	0	0	15:00	6	0	0	0	0	6
3:15	1	0	0	0	0	1	15:15	20	0	0	0	0	20
3:30	1	0	0	0	0	1	15:30	9	0	0	0	0	9
3:45	0	0	0	0	0	0	15:45	13	0	0	0	0	13
4:00	4	0	0	0	0	4	16:00	16	0	0	0	0	16
4:15	11	0	0	0	0	11	16:15	18	0	0	0	0	18
4:30	14	0	0	0	0	14	16:30	16	0	0	0	0	16
4:45	3	0	0	0	0	3	16:45	19	0	0	0	0	19
5:00	4	0	0	0	0	4	17:00	14	0	0	0	0	14
5:15	5	0	0	0	0	5	17:15	16	0	0	0	0	16
5:30	5	0	0	0	0	5	17:30	18	0	0	0	0	18
5:45	14	0	0	0	0	14	17:45	12	0	0	0	0	12
6:00	8	0	0	0	0	8	18:00	5	0	0	0	0	5
6:15	11	0	0	0	0	11	18:15	9	0	0	0	0	9
6:30	11	0	0	0	0	11	18:30	18	0	0	0	0	18
6:45	9	0	0	0	0	9	18:45	9	0	0	0	0	9
7:00	29	0	0	0	0	29	19:00	6	0	0	0	0	6
7:15	17	0	0	0	0	17	19:15	16	0	0	0	0	16
7:30	12	0	0	0	0	12	19:30	2	0	0	0	0	2
7:45	30	0	0	0	0	30	19:45	9	0	0	0	0	9
8:00	16	0	0	0	0	16	20:00	4	0	0	0	0	4
8:15	9	0	0	0	0	9	20:15	10	0	0	0	0	10
8:30	11	0	0	0	0	11	20:30	10	0	0	0	0	10
8:45	15	0	0	0	0	15	20:45	4	0	0	0	0	4
9:00	7	0	0	0	0	7	21:00	8	0	0	0	0	8
9:15	11	0	0	0	0	11	21:15	7	0	0	0	0	7
9:30	12	0	0	0	0	12	21:30	3	0	0	0	0	3
9:45	14	0	0	0	0	14	21:45	2	0	0	0	0	2
10:00	17	0	0	0	0	17	22:00	2	0	0	0	0	2
10:15	9	0	0	0	0	9	22:15	1	0	0	0	0	1
10:30	14	2	0	0	0	16	22:30	3	0	0	0	0	3
10:45	8	1	0	0	0	9	22:45	4	0	0	0	0	4
11:00	7	0	0	0	0	7	23:00	1	0	0	0	0	1
11:15	8	0	0	0	0	8	23:15	2	0	0	0	0	2
11:30	9	0	0	0	0	9	23:30	0	0	0	0	0	0
11:45	10	1	0	0	0	11	23:45	1	0	0	0	0	1
TOTAL	398	4	0	0	0	402	TOTAL	466	2	2	0	0	470

AM PEAK HOUR	7:00 AM
AM PEAK VOLUME	88

AM PEAK HOUR	4:00 PM
AM PEAK VOLUME	69

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

	1	2	3	4	5	TOTAL
TOTAL: AM+PM	864	6	2	0	0	872
% OF TOTAL	99.1%	0.7%	0.2%	0.0%	0.0%	100.0%
AM PEAK	88	0	0	0	0	88
PM PEAK	69	0	0	0	0	69

A021323

Study Site 4 - Vesada Aparment Homes

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS73 Southern Dwy east of Country Village.

AM TIME	IN 1	2	3	4	5	TOTAL	PM Time	IN 1	2	3	4	5	TOTAL
0:00	0	0	0	0	0	0	12:00	0	0	0	0	0	0
0:15	0	0	0	0	0	0	12:15	0	0	0	0	0	0
0:30	0	0	0	0	0	0	12:30	0	0	0	0	0	0
0:45	0	0	0	0	0	0	12:45	0	0	0	0	0	0
1:00	0	0	0	0	0	0	13:00	0	0	0	0	0	0
1:15	0	0	0	0	0	0	13:15	0	0	0	0	0	0
1:30	0	0	0	0	0	0	13:30	0	0	0	0	0	0
1:45	0	0	0	0	0	0	13:45	0	0	0	0	0	0
2:00	0	0	0	0	0	0	14:00	0	0	0	0	0	0
2:15	0	0	0	0	0	0	14:15	0	0	0	0	0	0
2:30	0	0	0	0	0	0	14:30	0	0	0	0	0	0
2:45	0	0	0	0	0	0	14:45	0	0	0	0	0	0
3:00	0	0	0	0	0	0	15:00	0	0	0	0	0	0
3:15	0	0	0	0	0	0	15:15	0	0	0	0	0	0
3:30	0	0	0	0	0	0	15:30	0	0	0	0	0	0
3:45	0	0	0	0	0	0	15:45	0	0	0	0	0	0
4:00	0	0	0	0	0	0	16:00	0	0	0	0	0	0
4:15	0	0	0	0	0	0	16:15	0	0	0	0	0	0
4:30	0	0	0	0	0	0	16:30	0	0	0	0	0	0
4:45	0	0	0	0	0	0	16:45	0	0	0	0	0	0
5:00	0	0	0	0	0	0	17:00	0	0	0	0	0	0
5:15	0	0	0	0	0	0	17:15	0	0	0	0	0	0
5:30	0	0	0	0	0	0	17:30	0	0	0	0	0	0
5:45	0	0	0	0	0	0	17:45	0	0	0	0	0	0
6:00	0	0	0	0	0	0	18:00	0	0	0	0	0	0
6:15	0	0	0	0	0	0	18:15	0	0	0	0	0	0
6:30	0	0	0	0	0	0	18:30	0	0	0	0	0	0
6:45	0	0	0	0	0	0	18:45	0	0	0	0	0	0
7:00	0	0	0	0	0	0	19:00	0	0	0	0	0	0
7:15	0	0	0	0	0	0	19:15	0	0	0	0	0	0
7:30	0	0	0	0	0	0	19:30	0	0	0	0	0	0
7:45	0	0	0	0	0	0	19:45	0	0	0	0	0	0
8:00	0	0	0	0	0	0	20:00	0	0	0	0	0	0
8:15	0	0	0	0	0	0	20:15	0	0	0	0	0	0
8:30	0	0	0	0	0	0	20:30	0	0	0	0	0	0
8:45	0	0	0	0	0	0	20:45	0	0	0	0	0	0
9:00	0	0	0	0	0	0	21:00	0	0	0	0	0	0
9:15	0	0	0	0	0	0	21:15	0	0	0	0	0	0
9:30	0	0	0	0	0	0	21:30	0	0	0	0	0	0
9:45	0	0	0	0	0	0	21:45	0	0	0	0	0	0
10:00	0	0	0	0	0	0	22:00	0	0	0	0	0	0
10:15	0	0	0	0	0	0	22:15	0	0	0	0	0	0
10:30	0	0	0	0	0	0	22:30	0	0	0	0	0	0
10:45	0	0	0	0	0	0	22:45	0	0	0	0	0	0
11:00	0	0	0	0	0	0	23:00	0	0	0	0	0	0
11:15	0	0	0	0	0	0	23:15	0	0	0	0	0	0
11:30	0	0	0	0	0	0	23:30	0	0	0	0	0	0
11:45	0	0	0	0	0	0	23:45	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	TOTAL	0	0	0	0	0	0

AM PEAK HOUR	11:45 AM
AM PEAK VOLUME	0

AM PEAK HOUR	11:45 PM
AM PEAK VOLUME	0

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

	1	2	3	4	5	TOTAL
TOTAL: AM+PM	0	0	0	0	0	0
% OF TOTAL	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
AM PEAK	0	0	0	0	0	0
PM PEAK	0	0	0	0	0	0

A13123

Study Site 4 - Vesada Aparment Homes

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS73 Southern Dwy east of Country Village.

AM	OUT						PM	OUT					
TIME	1	2	3	4	5	TOTAL	Time	1	2	3	4	5	TOTAL
0:00	1	0	0	0	0	1	12:00	1	0	0	0	0	1
0:15	0	0	0	0	0	0	12:15	3	0	0	0	0	3
0:30	1	0	0	0	0	1	12:30	2	0	0	0	0	2
0:45	1	0	0	0	0	1	12:45	3	0	0	0	0	3
1:00	0	0	0	0	0	0	13:00	0	0	0	0	0	0
1:15	1	0	0	0	0	1	13:15	0	0	0	0	0	0
1:30	0	0	0	0	0	0	13:30	6	0	0	0	0	6
1:45	0	0	0	0	0	0	13:45	0	0	0	0	0	0
2:00	0	0	0	0	0	0	14:00	2	0	0	0	0	2
2:15	0	0	0	0	0	0	14:15	5	0	0	0	0	5
2:30	0	0	0	0	0	0	14:30	4	1	0	0	0	5
2:45	0	0	0	0	0	0	14:45	1	0	0	0	0	1
3:00	0	0	0	0	0	0	15:00	2	0	0	0	0	2
3:15	4	0	0	0	0	4	15:15	1	0	0	0	0	1
3:30	5	0	0	0	0	5	15:30	1	0	0	0	0	1
3:45	1	0	0	0	0	1	15:45	0	0	0	0	0	0
4:00	3	0	0	0	0	3	16:00	1	0	0	0	0	1
4:15	0	0	0	0	0	0	16:15	5	0	0	0	0	5
4:30	1	0	0	0	0	1	16:30	1	0	0	0	0	1
4:45	2	0	0	0	0	2	16:45	0	0	0	0	0	0
5:00	0	0	0	0	0	0	17:00	1	0	0	0	0	1
5:15	3	0	0	0	0	3	17:15	2	0	0	0	0	2
5:30	1	0	0	0	0	1	17:30	0	0	0	0	0	0
5:45	2	0	0	0	0	2	17:45	2	0	0	0	0	2
6:00	3	0	0	0	0	3	18:00	1	0	0	0	0	1
6:15	1	0	0	0	0	1	18:15	1	0	0	0	0	1
6:30	3	0	0	0	0	3	18:30	1	0	0	0	0	1
6:45	1	0	0	0	0	1	18:45	1	0	0	0	0	1
7:00	3	0	0	0	0	3	19:00	3	0	0	0	0	3
7:15	1	0	0	0	0	1	19:15	0	0	0	0	0	0
7:30	2	0	0	0	0	2	19:30	3	0	0	0	0	3
7:45	3	0	0	0	0	3	19:45	1	0	0	0	0	1
8:00	3	0	0	0	0	3	20:00	1	0	0	0	0	1
8:15	1	0	0	0	0	1	20:15	0	0	0	0	0	0
8:30	0	0	0	0	0	0	20:30	2	0	0	0	0	2
8:45	0	0	0	0	0	0	20:45	2	0	0	0	0	2
9:00	2	0	0	0	0	2	21:00	2	0	0	0	0	2
9:15	3	0	0	0	0	3	21:15	3	0	0	0	0	3
9:30	1	0	0	0	0	1	21:30	4	0	0	0	0	4
9:45	4	0	0	0	0	4	21:45	0	0	0	0	0	0
10:00	3	0	0	0	0	3	22:00	3	0	0	0	0	3
10:15	0	0	0	0	0	0	22:15	2	0	0	0	0	2
10:30	2	0	0	0	0	2	22:30	2	0	0	0	0	2
10:45	1	0	0	0	0	1	22:45	1	0	0	0	0	1
11:00	2	0	0	0	0	2	23:00	1	0	0	0	0	1
11:15	1	0	0	0	0	1	23:15	1	0	0	0	0	1
11:30	0	0	0	0	0	0	23:30	0	0	0	0	0	0
11:45	3	0	0	0	0	3	23:45	0	0	0	0	0	0
TOTAL	69	0	0	0	0	69	TOTAL	78	1	0	0	0	79

AM PEAK HOUR	3:15 AM
AM PEAK VOLUME	13

AM PEAK HOUR	2:15 PM
AM PEAK VOLUME	13

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

TOTAL: AM+PM	147	1	0	0	0	148
% OF TOTAL	99.3%	0.7%	0.0%	0.0%	0.0%	100.0%
AM PEAK	9	0	0	0	0	9
PM PEAK	7	0	0	0	0	7

A021323

Study Site 4 - Vesada Aparment Homes

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS74 Northern Dwy east of Country Village.

AM	IN						PM	IN					
TIME	1	2	3	4	5	TOTAL	Time	1	2	3	4	5	TOTAL
0:00	5	0	0	0	0	5	12:00	33	0	0	0	0	33
0:15	10	0	0	0	0	10	12:15	33	1	0	0	0	34
0:30	5	0	0	0	0	5	12:30	36	1	0	0	0	37
0:45	4	0	0	0	0	4	12:45	37	0	1	0	0	38
1:00	7	0	0	0	0	7	13:00	34	0	0	0	0	34
1:15	6	0	0	0	0	6	13:15	36	0	0	0	0	36
1:30	1	0	0	0	0	1	13:30	32	0	0	0	0	32
1:45	5	0	0	0	0	5	13:45	34	2	0	0	0	36
2:00	6	0	0	0	0	6	14:00	33	0	0	0	0	33
2:15	3	0	0	0	0	3	14:15	26	2	0	0	0	28
2:30	1	0	0	0	0	1	14:30	34	0	0	0	0	34
2:45	5	0	0	0	0	5	14:45	39	0	0	0	0	39
3:00	2	0	0	0	0	2	15:00	49	0	0	0	0	49
3:15	2	0	0	0	0	2	15:15	39	0	0	0	0	39
3:30	7	0	0	0	0	7	15:30	26	0	0	0	0	26
3:45	8	0	0	0	0	8	15:45	65	0	0	0	0	65
4:00	3	0	0	0	0	3	16:00	49	0	0	0	0	49
4:15	6	0	0	0	0	6	16:15	59	1	0	0	0	60
4:30	4	0	0	0	0	4	16:30	74	0	0	0	0	74
4:45	7	0	0	0	0	7	16:45	52	0	0	0	0	52
5:00	6	0	0	0	0	6	17:00	47	0	0	0	0	47
5:15	6	0	0	0	0	6	17:15	51	0	0	0	0	51
5:30	3	0	0	0	0	3	17:30	50	0	0	0	0	50
5:45	7	0	0	0	0	7	17:45	55	0	0	0	0	55
6:00	5	0	0	0	0	5	18:00	60	0	0	0	0	60
6:15	15	0	0	0	0	15	18:15	52	0	0	0	0	52
6:30	13	0	0	0	0	13	18:30	44	0	0	0	0	44
6:45	11	0	0	0	0	11	18:45	51	2	0	0	0	53
7:00	19	0	0	0	0	19	19:00	42	0	0	0	0	42
7:15	16	0	0	0	0	16	19:15	26	0	0	0	0	26
7:30	14	0	0	0	0	14	19:30	46	0	0	0	0	46
7:45	34	0	0	0	0	34	19:45	42	0	0	0	0	42
8:00	30	0	0	0	0	30	20:00	44	0	0	0	0	44
8:15	39	0	0	0	0	39	20:15	35	0	0	0	0	35
8:30	28	0	0	0	0	28	20:30	29	0	0	0	0	29
8:45	27	0	0	0	0	27	20:45	33	0	0	0	0	33
9:00	22	0	0	0	0	22	21:00	31	0	0	0	0	31
9:15	21	0	0	0	0	21	21:15	27	0	0	0	0	27
9:30	20	2	0	0	0	22	21:30	27	0	0	0	0	27
9:45	24	2	0	0	0	26	21:45	27	0	0	0	0	27
10:00	19	1	0	0	0	20	22:00	22	0	0	0	0	22
10:15	17	1	0	0	0	18	22:15	24	0	0	0	0	24
10:30	21	0	0	0	0	21	22:30	21	0	0	0	0	21
10:45	12	0	0	0	0	12	22:45	22	0	0	0	0	22
11:00	31	0	1	0	0	32	23:00	12	0	0	0	0	12
11:15	28	0	0	0	0	28	23:15	11	0	0	0	0	11
11:30	21	1	0	0	0	22	23:30	9	0	0	0	0	9
11:45	23	2	0	0	0	25	23:45	7	0	0	0	0	7
TOTAL	629	9	1	0	0	639	TOTAL	1,767	9	1	0	0	1,777

AM PEAK HOUR	7:45 AM
AM PEAK VOLUME	131

AM PEAK HOUR	3:45 PM
AM PEAK VOLUME	248

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

TOTAL: AM+PM	2,396	18	2	0	0	2,416
% OF TOTAL	99.2%	0.7%	0.1%	0.0%	0.0%	100.0%
AM PEAK	131	0	0	0	0	131
PM PEAK	234	1	0	0	0	235

A13123

Study Site 4 - Vesada Aparment Homes

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS74 Northern Dwy east of Country Village.

AM	OUT						PM	OUT					
TIME	1	2	3	4	5	TOTAL	Time	1	2	3	4	5	TOTAL
0:00	2	0	0	0	0	2	12:00	27	2	0	0	0	29
0:15	4	0	0	0	0	4	12:15	33	0	0	0	0	33
0:30	2	0	0	0	0	2	12:30	34	2	0	0	0	36
0:45	3	0	0	0	0	3	12:45	28	1	0	0	0	29
1:00	2	0	0	0	0	2	13:00	29	0	1	0	0	30
1:15	3	0	0	0	0	3	13:15	44	0	0	0	0	44
1:30	5	0	0	0	0	5	13:30	38	1	0	0	0	39
1:45	3	0	0	0	0	3	13:45	29	1	0	0	0	30
2:00	2	0	0	0	0	2	14:00	24	2	0	0	0	26
2:15	5	0	0	0	0	5	14:15	22	0	0	0	0	22
2:30	1	0	0	0	0	1	14:30	25	1	0	0	0	26
2:45	2	0	0	0	0	2	14:45	35	0	0	0	0	35
3:00	5	0	0	0	0	5	15:00	31	0	0	0	0	31
3:15	4	0	0	0	0	4	15:15	21	0	0	0	0	21
3:30	16	0	0	0	0	16	15:30	29	0	0	0	0	29
3:45	6	0	0	0	0	6	15:45	29	0	0	0	0	29
4:00	17	0	0	0	0	17	16:00	26	0	0	0	0	26
4:15	6	0	0	0	0	6	16:15	29	0	0	0	0	29
4:30	17	0	0	0	0	17	16:30	29	1	0	0	0	30
4:45	20	2	0	0	0	22	16:45	31	0	0	0	0	31
5:00	19	1	0	0	0	20	17:00	30	0	0	0	0	30
5:15	14	0	0	0	0	14	17:15	34	0	0	0	0	34
5:30	14	0	0	0	0	14	17:30	38	0	0	0	0	38
5:45	17	0	0	0	0	17	17:45	36	0	0	0	0	36
6:00	18	0	0	0	0	18	18:00	37	0	0	0	0	37
6:15	38	0	0	0	0	38	18:15	41	0	0	0	0	41
6:30	34	0	0	0	0	34	18:30	31	0	0	0	0	31
6:45	46	0	0	0	0	46	18:45	21	0	0	0	0	21
7:00	46	0	0	0	0	46	19:00	31	0	0	0	0	31
7:15	82	0	0	0	0	82	19:15	24	0	0	0	0	24
7:30	56	0	0	0	0	56	19:30	40	1	0	0	0	41
7:45	52	0	0	0	0	52	19:45	32	0	0	0	0	32
8:00	48	0	0	0	0	48	20:00	30	0	0	0	0	30
8:15	59	1	0	0	0	60	20:15	17	0	0	0	0	17
8:30	26	0	0	0	0	26	20:30	17	0	0	0	0	17
8:45	32	1	0	0	0	33	20:45	19	0	0	0	0	19
9:00	27	0	0	0	0	27	21:00	15	0	0	0	0	15
9:15	26	0	0	0	0	26	21:15	14	0	0	0	0	14
9:30	31	1	0	0	0	32	21:30	12	0	0	0	0	12
9:45	36	0	0	0	0	36	21:45	19	0	0	0	0	19
10:00	28	0	0	0	0	28	22:00	13	0	0	0	0	13
10:15	32	1	0	0	0	33	22:15	15	0	0	0	0	15
10:30	32	0	0	0	0	32	22:30	11	0	0	0	0	11
10:45	23	0	0	0	0	23	22:45	10	0	0	0	0	10
11:00	29	0	0	0	0	29	23:00	5	0	0	0	0	5
11:15	25	0	0	0	0	25	23:15	7	0	0	0	0	7
11:30	32	0	1	0	0	33	23:30	10	0	0	0	0	10
11:45	33	2	0	0	0	35	23:45	3	0	0	0	0	3
TOTAL	1,080	9	1	0	0	1,090	TOTAL	1,205	12	1	0	0	1,218

AM PEAK HOUR	7:15 AM
AM PEAK VOLUME	238

AM PEAK HOUR	5:30 PM
AM PEAK VOLUME	152

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

TOTAL: AM+PM	2,285	21	2	0	0	2,308
% OF TOTAL	99.0%	0.9%	0.1%	0.0%	0.0%	100.0%
AM PEAK	238	0	0	0	0	238
PM PEAK	138	0	0	0	0	138

A021323

Study Site 5 - Morning Ridge Apartments

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS84 Northern Dwy east of Milky Way.

AM	IN						PM	IN					
TIME	1	2	3	4	5	TOTAL	Time	1	2	3	4	5	TOTAL
0:00	4	0	0	0	0	4	12:00	9	0	0	0	0	9
0:15	1	0	0	0	0	1	12:15	3	0	0	0	0	3
0:30	1	0	0	0	0	1	12:30	4	0	0	0	0	4
0:45	0	0	0	0	0	0	12:45	9	0	0	0	0	9
1:00	1	0	0	0	0	1	13:00	4	0	0	0	0	4
1:15	0	0	0	0	0	0	13:15	5	1	0	0	0	6
1:30	1	0	0	0	0	1	13:30	9	0	0	0	0	9
1:45	0	0	0	0	0	0	13:45	8	0	0	0	0	8
2:00	0	0	0	0	0	0	14:00	8	0	0	0	0	8
2:15	0	0	0	0	0	0	14:15	7	1	0	0	0	8
2:30	0	0	0	0	0	0	14:30	12	0	0	0	0	12
2:45	0	0	0	0	0	0	14:45	13	0	0	0	0	13
3:00	1	0	0	0	0	1	15:00	7	0	0	0	0	7
3:15	1	0	0	0	0	1	15:15	7	0	0	0	0	7
3:30	0	0	0	0	0	0	15:30	9	0	0	0	0	9
3:45	0	0	0	0	0	0	15:45	18	0	0	0	0	18
4:00	1	0	0	0	0	1	16:00	6	0	0	0	0	6
4:15	1	0	0	0	0	1	16:15	18	0	0	0	0	18
4:30	0	0	0	0	0	0	16:30	11	0	0	0	0	11
4:45	0	0	0	0	0	0	16:45	15	0	0	0	0	15
5:00	0	0	0	0	0	0	17:00	8	0	0	0	0	8
5:15	2	0	0	0	0	2	17:15	12	0	0	0	0	12
5:30	0	0	0	0	0	0	17:30	6	0	0	0	0	6
5:45	1	0	0	0	0	1	17:45	15	0	0	0	0	15
6:00	0	0	0	0	0	0	18:00	6	0	0	0	0	6
6:15	1	0	0	0	0	1	18:15	8	0	0	0	0	8
6:30	2	0	0	0	0	2	18:30	6	0	0	0	0	6
6:45	2	0	0	0	0	2	18:45	8	0	0	0	0	8
7:00	1	0	0	0	0	1	19:00	6	0	0	0	0	6
7:15	3	0	0	0	0	3	19:15	10	0	0	0	0	10
7:30	5	0	0	0	0	5	19:30	8	0	0	0	0	8
7:45	5	0	0	1	0	6	19:45	6	0	0	0	0	6
8:00	8	0	0	0	0	8	20:00	9	0	0	0	0	9
8:15	4	1	0	0	0	5	20:15	12	0	0	0	0	12
8:30	4	0	0	0	0	4	20:30	10	0	0	0	0	10
8:45	7	0	0	0	0	7	20:45	8	0	0	0	0	8
9:00	3	0	0	0	0	3	21:00	8	0	0	0	0	8
9:15	1	0	0	0	0	1	21:15	8	0	0	0	0	8
9:30	3	0	0	0	0	3	21:30	2	0	0	0	0	2
9:45	4	0	0	0	0	4	21:45	7	0	0	0	0	7
10:00	2	0	0	0	0	2	22:00	4	0	0	0	0	4
10:15	4	0	0	0	0	4	22:15	2	0	0	0	0	2
10:30	3	0	0	0	0	3	22:30	4	0	0	0	0	4
10:45	4	0	0	0	0	4	22:45	4	0	0	0	0	4
11:00	2	0	0	0	0	2	23:00	4	0	0	0	0	4
11:15	8	0	0	0	0	8	23:15	1	0	0	0	0	1
11:30	5	0	0	0	0	5	23:30	2	0	0	0	0	2
11:45	5	0	0	0	0	5	23:45	1	0	0	0	0	1
TOTAL	101	1	0	1	0	103	TOTAL	367	2	0	0	0	369

AM PEAK HOUR	8:00 AM
AM PEAK VOLUME	24

AM PEAK HOUR	3:45 PM
AM PEAK VOLUME	53

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

TOTAL: AM+PM	468	3	0	1	0	472
% OF TOTAL	99.2%	0.6%	0.0%	0.2%	0.0%	100.0%
AM PEAK	23	1	0	0	0	24
PM PEAK	52	0	0	0	0	52

A13123

Study Site 5 - Morning Ridge Apartments

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS84 Northern Dwy east of Milky Way.

AM	OUT						PM	OUT					
TIME	1	2	3	4	5	TOTAL	Time	1	2	3	4	5	TOTAL
0:00	2	0	0	0	0	2	12:00	6	0	0	0	0	6
0:15	0	0	0	0	0	0	12:15	11	1	0	0	0	12
0:30	0	0	0	0	0	0	12:30	3	0	0	0	0	3
0:45	2	0	0	0	0	2	12:45	10	1	0	0	0	11
1:00	0	0	0	0	0	0	13:00	7	0	0	0	0	7
1:15	3	0	0	0	0	3	13:15	9	0	0	0	0	9
1:30	1	0	0	0	0	1	13:30	4	2	0	0	0	6
1:45	0	0	0	0	0	0	13:45	11	0	0	0	0	11
2:00	0	0	0	0	0	0	14:00	7	0	0	0	0	7
2:15	1	0	0	0	0	1	14:15	8	0	0	0	0	8
2:30	0	0	0	0	0	0	14:30	13	0	0	0	0	13
2:45	0	0	0	0	0	0	14:45	8	1	0	0	0	9
3:00	1	0	0	0	0	1	15:00	7	0	0	0	0	7
3:15	2	0	0	0	0	2	15:15	6	0	0	0	0	6
3:30	3	0	0	0	0	3	15:30	12	0	0	0	0	12
3:45	1	0	0	0	0	1	15:45	5	0	0	0	0	5
4:00	0	0	0	0	0	0	16:00	19	0	0	0	0	19
4:15	3	0	0	0	0	3	16:15	6	0	0	0	0	6
4:30	3	0	0	0	0	3	16:30	4	0	0	0	0	4
4:45	2	0	0	0	0	2	16:45	9	0	0	0	0	9
5:00	2	0	0	0	0	2	17:00	4	0	0	0	0	4
5:15	3	0	0	0	0	3	17:15	5	1	0	0	0	6
5:30	10	0	0	0	0	10	17:30	11	0	0	0	0	11
5:45	9	0	0	0	0	9	17:45	15	0	0	0	0	15
6:00	3	0	0	0	0	3	18:00	10	0	0	0	0	10
6:15	12	0	0	0	0	12	18:15	5	0	0	0	0	5
6:30	12	0	0	0	0	12	18:30	10	0	0	0	0	10
6:45	5	0	0	0	0	5	18:45	7	0	0	0	0	7
7:00	10	0	0	0	0	10	19:00	3	0	0	0	0	3
7:15	19	0	0	0	0	19	19:15	2	0	0	0	0	2
7:30	13	0	0	0	0	13	19:30	5	0	0	0	0	5
7:45	17	0	0	0	0	17	19:45	3	0	0	0	0	3
8:00	13	0	0	0	0	13	20:00	7	0	0	0	0	7
8:15	15	0	0	0	0	15	20:15	4	0	0	0	0	4
8:30	14	0	0	0	0	14	20:30	4	0	0	0	0	4
8:45	8	0	0	0	0	8	20:45	2	0	0	0	0	2
9:00	9	0	0	0	0	9	21:00	5	0	0	0	0	5
9:15	7	0	0	0	0	7	21:15	3	0	0	0	0	3
9:30	4	1	0	0	0	5	21:30	2	0	0	0	0	2
9:45	10	1	0	0	0	11	21:45	4	0	0	0	0	4
10:00	7	0	0	0	0	7	22:00	0	0	0	0	0	0
10:15	4	0	0	0	0	4	22:15	2	0	0	0	0	2
10:30	10	1	0	0	0	11	22:30	0	0	0	0	0	0
10:45	3	0	0	0	0	3	22:45	1	0	0	0	0	1
11:00	5	1	0	0	0	6	23:00	1	0	0	0	0	1
11:15	9	0	0	0	0	9	23:15	1	0	0	0	0	1
11:30	5	0	0	0	0	5	23:30	1	0	0	0	0	1
11:45	12	0	0	0	0	12	23:45	0	0	0	0	0	0
TOTAL	274	4	0	0	0	278	TOTAL	282	6	0	0	0	288

AM PEAK HOUR	7:15 AM
AM PEAK VOLUME	62

AM PEAK HOUR	5:15 PM
AM PEAK VOLUME	42

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

TOTAL: AM+PM	556	10	0	0	0	566
% OF TOTAL	98.2%	1.8%	0.0%	0.0%	0.0%	100.0%
AM PEAK	62	0	0	0	0	62
PM PEAK	38	0	0	0	0	38

A021323

Study Site 5 - Morning Ridge Apartments

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS85 Middle Dwy east of Milky Way.

AM	IN						PM	IN					
TIME	1	2	3	4	5	TOTAL	Time	1	2	3	4	5	TOTAL
0:00	3	0	0	0	0	3	12:00	10	0	0	0	0	10
0:15	3	0	0	0	0	3	12:15	10	0	0	0	0	10
0:30	0	0	0	0	0	0	12:30	14	0	0	0	0	14
0:45	0	0	0	0	0	0	12:45	12	0	0	0	0	12
1:00	0	0	0	0	0	0	13:00	12	1	0	0	0	13
1:15	2	0	0	0	0	2	13:15	12	1	0	0	0	13
1:30	6	0	0	0	0	6	13:30	11	0	0	0	0	11
1:45	0	0	0	0	0	0	13:45	8	0	0	0	0	8
2:00	2	0	0	0	0	2	14:00	11	1	0	0	0	12
2:15	1	0	0	0	0	1	14:15	6	0	0	0	0	6
2:30	0	0	0	0	0	0	14:30	10	0	0	0	0	10
2:45	1	0	0	0	0	1	14:45	13	0	0	0	0	13
3:00	0	0	0	0	0	0	15:00	15	0	0	0	0	15
3:15	0	0	0	0	0	0	15:15	10	0	0	0	0	10
3:30	0	0	0	0	0	0	15:30	10	0	0	0	0	10
3:45	0	0	0	0	0	0	15:45	18	0	0	0	0	18
4:00	0	0	0	0	0	0	16:00	18	0	0	0	0	18
4:15	1	0	0	0	0	1	16:15	19	0	0	0	0	19
4:30	0	0	0	0	0	0	16:30	20	0	0	0	0	20
4:45	1	0	0	0	0	1	16:45	18	1	0	0	0	19
5:00	1	0	0	0	0	1	17:00	20	0	0	0	0	20
5:15	0	0	0	0	0	0	17:15	19	0	0	0	0	19
5:30	1	0	0	0	0	1	17:30	19	0	0	0	0	19
5:45	0	0	0	0	0	0	17:45	17	0	0	0	0	17
6:00	2	0	0	0	0	2	18:00	11	0	0	0	0	11
6:15	2	0	0	0	0	2	18:15	30	0	0	0	0	30
6:30	4	0	0	0	0	4	18:30	15	0	0	0	0	15
6:45	2	0	0	0	0	2	18:45	18	0	0	0	0	18
7:00	3	0	0	0	0	3	19:00	23	3	0	0	0	26
7:15	3	0	0	0	0	3	19:15	10	0	0	0	0	10
7:30	9	0	0	0	0	9	19:30	19	0	0	0	0	19
7:45	9	0	0	0	0	9	19:45	10	0	0	0	0	10
8:00	5	0	0	0	0	5	20:00	11	0	0	0	0	11
8:15	13	0	0	0	0	13	20:15	6	0	0	0	0	6
8:30	4	0	0	0	0	4	20:30	9	0	0	0	0	9
8:45	9	0	0	0	0	9	20:45	6	0	0	0	0	6
9:00	2	0	0	0	0	2	21:00	7	0	0	0	0	7
9:15	3	0	0	0	0	3	21:15	4	0	0	0	0	4
9:30	9	0	0	0	0	9	21:30	8	0	0	0	0	8
9:45	7	0	0	0	0	7	21:45	2	0	0	0	0	2
10:00	5	0	0	0	0	5	22:00	4	0	0	0	0	4
10:15	3	0	0	0	0	3	22:15	1	0	0	0	0	1
10:30	6	0	0	0	0	6	22:30	1	0	0	0	0	1
10:45	8	0	0	0	0	8	22:45	6	0	0	0	0	6
11:00	6	0	0	0	0	6	23:00	7	0	0	0	0	7
11:15	13	0	0	0	0	13	23:15	1	0	0	0	0	1
11:30	11	1	0	0	0	12	23:30	4	0	0	0	0	4
11:45	7	0	0	0	0	7	23:45	0	0	0	0	0	0
TOTAL	167	1	0	0	0	168	TOTAL	545	7	0	0	0	552

AM PEAK HOUR	10:45 AM
AM PEAK VOLUME	39

AM PEAK HOUR	6:15 PM
AM PEAK VOLUME	89

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

TOTAL: AM+PM	712	8	0	0	0	720
% OF TOTAL	98.9%	1.1%	0.0%	0.0%	0.0%	100.0%
AM PEAK	31	0	0	0	0	31
PM PEAK	75	1	0	0	0	76

A13123

Study Site 5 - Morning Ridge Apartments

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS85 Middle Dwy east of Milky Way.

AM	OUT						PM	OUT					
TIME	1	2	3	4	5	TOTAL	Time	1	2	3	4	5	TOTAL
0:00	0	0	0	0	0	0	12:00	7	0	0	0	0	7
0:15	3	0	0	0	0	3	12:15	5	0	0	0	0	5
0:30	0	0	0	0	0	0	12:30	15	0	0	0	0	15
0:45	1	0	0	0	0	1	12:45	14	0	0	0	0	14
1:00	0	0	0	0	0	0	13:00	6	1	0	0	0	7
1:15	1	0	0	0	0	1	13:15	9	2	0	0	0	11
1:30	1	0	0	0	0	1	13:30	8	0	0	0	0	8
1:45	0	0	0	0	0	0	13:45	6	1	0	0	0	7
2:00	0	0	0	0	0	0	14:00	9	0	0	0	0	9
2:15	0	0	0	0	0	0	14:15	10	1	0	0	0	11
2:30	3	0	0	0	0	3	14:30	8	0	0	0	0	8
2:45	1	0	0	0	0	1	14:45	12	2	0	0	0	14
3:00	0	0	0	0	0	0	15:00	8	0	0	0	0	8
3:15	0	0	0	0	0	0	15:15	5	0	0	0	0	5
3:30	5	0	0	0	0	5	15:30	8	0	0	0	0	8
3:45	0	0	0	0	0	0	15:45	11	0	0	0	0	11
4:00	0	0	0	0	0	0	16:00	16	1	0	0	0	17
4:15	0	0	0	0	0	0	16:15	11	0	0	0	0	11
4:30	5	2	0	0	0	7	16:30	7	0	0	0	0	7
4:45	3	0	0	0	0	3	16:45	9	0	0	0	0	9
5:00	1	0	0	0	0	1	17:00	11	0	0	0	0	11
5:15	9	0	0	0	0	9	17:15	12	0	0	0	0	12
5:30	8	2	0	0	0	10	17:30	12	0	0	0	0	12
5:45	7	2	0	0	0	9	17:45	12	0	0	0	0	12
6:00	6	0	0	0	0	6	18:00	9	0	0	0	0	9
6:15	12	0	0	0	0	12	18:15	5	0	0	0	0	5
6:30	7	0	0	0	0	7	18:30	11	0	0	0	0	11
6:45	8	0	0	0	0	8	18:45	8	0	0	0	0	8
7:00	6	0	0	0	0	6	19:00	5	0	0	0	0	5
7:15	8	0	0	0	0	8	19:15	8	0	0	0	0	8
7:30	27	3	0	0	0	30	19:30	8	0	0	0	0	8
7:45	17	0	0	0	0	17	19:45	7	0	0	0	0	7
8:00	25	0	0	0	0	25	20:00	5	0	0	0	0	5
8:15	13	0	0	0	0	13	20:15	6	0	0	0	0	6
8:30	19	0	0	0	0	19	20:30	4	0	0	0	0	4
8:45	12	0	0	0	0	12	20:45	3	0	0	0	0	3
9:00	3	0	0	0	0	3	21:00	6	0	0	0	0	6
9:15	6	0	0	0	0	6	21:15	2	0	0	0	0	2
9:30	9	0	0	0	0	9	21:30	3	0	0	0	0	3
9:45	11	0	0	0	0	11	21:45	3	0	0	0	0	3
10:00	5	0	0	0	0	5	22:00	2	0	0	0	0	2
10:15	8	0	0	0	0	8	22:15	1	0	0	0	0	1
10:30	7	0	0	0	0	7	22:30	5	0	0	0	0	5
10:45	8	0	0	0	0	8	22:45	2	0	0	0	0	2
11:00	8	0	0	0	0	8	23:00	4	0	0	0	0	4
11:15	8	0	0	0	0	8	23:15	3	0	0	0	0	3
11:30	5	0	0	0	0	5	23:30	0	0	0	0	0	0
11:45	9	0	0	0	0	9	23:45	1	0	0	0	0	1
TOTAL	295	9	0	0	0	304	TOTAL	342	8	0	0	0	350

AM PEAK HOUR	7:30 AM
AM PEAK VOLUME	85

AM PEAK HOUR	5:00 PM
AM PEAK VOLUME	47

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

TOTAL: AM+PM	637	17	0	0	0	654
% OF TOTAL	97.4%	2.6%	0.0%	0.0%	0.0%	100.0%
AM PEAK	82	3	0	0	0	85
PM PEAK	47	0	0	0	0	47

A021323

Study Site 5 - Morning Ridge Apartments

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS86 Southern Dwy east of Milky Way.

AM	IN						PM	IN					
TIME	1	2	3	4	5	TOTAL	Time	1	2	3	4	5	TOTAL
0:00	1	0	0	0	0	1	12:00	4	0	0	0	0	4
0:15	0	0	0	0	0	0	12:15	5	0	0	0	0	5
0:30	2	0	0	0	0	2	12:30	7	1	0	0	0	8
0:45	0	0	0	0	0	0	12:45	7	1	0	0	0	8
1:00	1	0	0	0	0	1	13:00	4	0	0	0	0	4
1:15	2	0	0	0	0	2	13:15	4	0	0	0	0	4
1:30	1	0	0	0	0	1	13:30	9	2	0	0	0	11
1:45	1	0	0	0	0	1	13:45	13	1	0	0	0	14
2:00	0	0	0	0	0	0	14:00	11	0	0	0	0	11
2:15	0	0	0	0	0	0	14:15	7	1	0	0	0	8
2:30	0	0	0	0	0	0	14:30	11	0	0	0	0	11
2:45	0	0	0	0	0	0	14:45	11	2	0	0	0	13
3:00	1	0	0	0	0	1	15:00	7	0	0	0	0	7
3:15	1	0	0	0	0	1	15:15	12	1	0	0	0	13
3:30	0	0	0	0	0	0	15:30	8	0	0	0	0	8
3:45	0	0	0	0	0	0	15:45	9	0	0	0	0	9
4:00	1	0	0	0	0	1	16:00	5	0	0	0	0	5
4:15	0	0	0	0	0	0	16:15	7	0	0	0	0	7
4:30	0	0	0	0	0	0	16:30	16	0	0	0	0	16
4:45	0	0	0	0	0	0	16:45	14	0	0	0	0	14
5:00	2	0	0	0	0	2	17:00	10	0	0	0	0	10
5:15	0	0	0	0	0	0	17:15	9	1	0	0	0	10
5:30	2	0	0	0	0	2	17:30	10	1	0	0	0	11
5:45	0	0	0	0	0	0	17:45	9	0	0	0	0	9
6:00	2	0	0	0	0	2	18:00	11	0	0	0	0	11
6:15	2	0	0	0	0	2	18:15	16	0	0	0	0	16
6:30	2	0	0	0	0	2	18:30	11	0	0	0	0	11
6:45	1	0	0	0	0	1	18:45	10	0	0	0	0	10
7:00	5	0	0	0	0	5	19:00	9	0	0	0	0	9
7:15	4	0	0	0	0	4	19:15	16	0	0	0	0	16
7:30	1	3	0	0	0	4	19:30	11	0	0	0	0	11
7:45	5	0	0	0	0	5	19:45	8	0	0	0	0	8
8:00	7	0	0	0	0	7	20:00	12	0	0	0	0	12
8:15	2	0	0	0	0	2	20:15	16	0	0	0	0	16
8:30	9	0	0	0	0	9	20:30	4	0	0	0	0	4
8:45	5	0	0	0	0	5	20:45	4	0	0	0	0	4
9:00	5	0	0	0	0	5	21:00	9	0	0	0	0	9
9:15	4	0	0	0	0	4	21:15	8	0	0	0	0	8
9:30	6	0	0	0	0	6	21:30	7	0	0	0	0	7
9:45	3	1	0	0	0	4	21:45	4	0	0	0	0	4
10:00	3	0	0	0	0	3	22:00	5	0	0	0	0	5
10:15	4	0	0	0	0	4	22:15	6	0	0	0	0	6
10:30	4	0	0	0	0	4	22:30	7	0	0	0	0	7
10:45	2	1	0	0	0	3	22:45	4	0	0	0	0	4
11:00	5	0	0	0	0	5	23:00	1	0	0	0	0	1
11:15	2	0	0	0	0	2	23:15	3	0	0	0	0	3
11:30	9	0	0	0	0	9	23:30	4	0	0	0	0	4
11:45	2	0	0	0	0	2	23:45	3	0	0	0	0	3
TOTAL	109	5	0	0	0	114	TOTAL	398	11	0	0	0	409

AM PEAK HOUR	8:30 AM
AM PEAK VOLUME	23

AM PEAK HOUR	4:30 PM
AM PEAK VOLUME	50

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

TOTAL: AM+PM	507	16	0	0	0	523
% OF TOTAL	96.9%	3.1%	0.0%	0.0%	0.0%	100.0%
AM PEAK	23	0	0	0	0	23
PM PEAK	49	1	0	0	0	50

A13123

Study Site 5 - Morning Ridge Apartments

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS86 Southern Dwy east of Milky Way.

AM	OUT						PM	OUT					
TIME	1	2	3	4	5	TOTAL	Time	1	2	3	4	5	TOTAL
0:00	1	0	0	0	0	1	12:00	4	0	0	0	0	4
0:15	0	0	0	0	0	0	12:15	6	0	0	0	0	6
0:30	1	0	0	0	0	1	12:30	7	0	0	0	0	7
0:45	0	0	0	0	0	0	12:45	4	0	0	0	0	4
1:00	2	0	0	0	0	2	13:00	4	0	0	0	0	4
1:15	0	0	0	0	0	0	13:15	5	0	0	0	0	5
1:30	3	0	0	0	0	3	13:30	11	0	0	0	0	11
1:45	0	0	0	0	0	0	13:45	4	1	0	0	0	5
2:00	0	0	0	0	0	0	14:00	14	0	0	0	0	14
2:15	0	0	0	0	0	0	14:15	5	1	0	0	0	6
2:30	0	0	0	0	0	0	14:30	15	0	0	0	0	15
2:45	0	0	0	0	0	0	14:45	6	0	0	0	0	6
3:00	0	0	0	0	0	0	15:00	5	0	0	0	0	5
3:15	0	0	0	0	0	0	15:15	6	0	0	0	0	6
3:30	1	0	0	0	0	1	15:30	1	0	0	0	0	1
3:45	0	0	0	0	0	0	15:45	5	0	0	0	0	5
4:00	2	0	0	0	0	2	16:00	6	0	0	0	0	6
4:15	2	0	0	0	0	2	16:15	6	0	0	0	0	6
4:30	9	0	0	0	0	9	16:30	9	0	0	0	0	9
4:45	3	0	0	0	0	3	16:45	13	0	0	0	0	13
5:00	6	0	0	0	0	6	17:00	10	0	0	0	0	10
5:15	9	0	0	0	0	9	17:15	9	0	0	0	0	9
5:30	8	0	0	0	0	8	17:30	4	0	0	0	0	4
5:45	5	0	0	0	0	5	17:45	7	0	0	0	0	7
6:00	8	0	0	0	0	8	18:00	8	0	0	0	0	8
6:15	7	0	0	0	0	7	18:15	4	0	0	0	0	4
6:30	8	0	0	0	0	8	18:30	4	0	0	0	0	4
6:45	3	0	0	0	0	3	18:45	5	0	0	0	0	5
7:00	4	0	0	0	0	4	19:00	5	0	0	0	0	5
7:15	5	0	0	0	0	5	19:15	7	0	0	0	0	7
7:30	12	0	0	0	0	12	19:30	4	0	0	0	0	4
7:45	9	0	0	0	0	9	19:45	3	0	0	0	0	3
8:00	7	0	0	0	0	7	20:00	4	0	0	0	0	4
8:15	7	0	0	1	0	8	20:15	3	0	0	0	0	3
8:30	15	0	0	0	0	15	20:30	4	0	0	0	0	4
8:45	4	0	0	0	0	4	20:45	4	0	0	0	0	4
9:00	3	0	0	0	0	3	21:00	2	0	0	0	0	2
9:15	6	0	0	0	0	6	21:15	7	0	0	0	0	7
9:30	8	0	0	0	0	8	21:30	2	0	0	0	0	2
9:45	6	0	0	0	0	6	21:45	4	0	0	0	0	4
10:00	7	0	0	0	0	7	22:00	0	0	0	0	0	0
10:15	4	0	0	0	0	4	22:15	4	0	0	0	0	4
10:30	5	0	0	0	0	5	22:30	1	0	0	0	0	1
10:45	2	0	0	0	0	2	22:45	1	0	0	0	0	1
11:00	10	0	0	0	0	10	23:00	1	0	0	0	0	1
11:15	4	0	0	0	0	4	23:15	2	0	0	0	0	2
11:30	5	0	0	0	0	5	23:30	0	0	0	0	0	0
11:45	7	0	0	0	0	7	23:45	2	0	0	0	0	2
TOTAL	208	0	0	1	0	209	TOTAL	247	2	0	0	0	249

AM PEAK HOUR	7:45 AM
AM PEAK VOLUME	39

AM PEAK HOUR	4:30 PM
AM PEAK VOLUME	41

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

TOTAL: AM+PM	455	2	0	1	0	458
% OF TOTAL	99.3%	0.4%	0.0%	0.2%	0.0%	100.0%
AM PEAK	38	0	0	1	0	39
PM PEAK	41	0	0	0	0	41

A021323

Study Site 6 - Stonegate Apartments

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS71 Northern dwy west of Doolittle

AM TIME	IN 1	2	3	4	5	TOTAL	PM Time	IN 1	2	3	4	5	TOTAL
0:00	0	0	0	0	0	0	12:00	12	0	0	0	0	12
0:15	2	0	0	0	0	2	12:15	9	0	0	0	0	9
0:30	2	0	0	0	0	2	12:30	11	0	0	0	0	11
0:45	3	0	0	0	0	3	12:45	12	0	0	0	0	12
1:00	1	0	0	0	0	1	13:00	5	0	0	0	0	5
1:15	5	0	0	0	0	5	13:15	7	0	0	0	0	7
1:30	2	0	0	0	0	2	13:30	11	0	0	0	0	11
1:45	3	0	0	0	0	3	13:45	10	0	0	0	0	10
2:00	1	0	0	0	0	1	14:00	16	0	0	0	0	16
2:15	1	0	0	0	0	1	14:15	14	0	0	0	0	14
2:30	0	0	0	0	0	0	14:30	23	0	0	0	0	23
2:45	0	0	0	0	0	0	14:45	10	0	0	0	0	10
3:00	3	0	0	0	0	3	15:00	17	0	0	0	0	17
3:15	3	0	0	0	0	3	15:15	18	0	0	0	0	18
3:30	1	0	0	0	0	1	15:30	14	0	0	0	0	14
3:45	1	1	0	0	0	2	15:45	16	0	0	0	0	16
4:00	1	0	0	0	0	1	16:00	17	0	0	0	0	17
4:15	0	0	0	0	0	0	16:15	16	0	0	0	0	16
4:30	1	0	0	0	0	1	16:30	17	0	0	0	0	17
4:45	6	0	0	0	0	6	16:45	12	0	0	0	0	12
5:00	3	0	0	0	0	3	17:00	16	0	0	0	0	16
5:15	6	0	0	0	0	6	17:15	22	0	0	0	0	22
5:30	0	0	0	0	0	0	17:30	17	0	0	0	0	17
5:45	1	0	0	0	0	1	17:45	17	0	0	0	0	17
6:00	2	0	0	0	0	2	18:00	20	0	0	0	0	20
6:15	1	0	0	0	0	1	18:15	10	0	0	0	0	10
6:30	2	0	0	0	0	2	18:30	15	0	0	0	0	15
6:45	3	0	0	0	0	3	18:45	15	0	0	0	0	15
7:00	3	0	0	0	0	3	19:00	6	0	0	0	0	6
7:15	4	0	0	0	0	4	19:15	6	1	0	0	0	7
7:30	4	0	0	0	0	4	19:30	16	0	0	0	0	16
7:45	9	0	0	0	0	9	19:45	10	0	0	0	0	10
8:00	13	0	0	0	0	13	20:00	8	0	0	0	0	8
8:15	7	0	0	0	0	7	20:15	13	0	0	0	0	13
8:30	12	1	0	0	0	13	20:30	15	0	0	0	0	15
8:45	13	0	0	0	0	13	20:45	11	0	0	0	0	11
9:00	5	0	0	0	0	5	21:00	14	0	0	0	0	14
9:15	3	0	0	0	0	3	21:15	9	0	0	0	0	9
9:30	4	0	0	0	0	4	21:30	12	0	0	0	0	12
9:45	7	1	0	0	0	8	21:45	12	0	0	0	0	12
10:00	2	0	0	0	0	2	22:00	8	0	0	0	0	8
10:15	5	0	0	0	0	5	22:15	4	0	0	0	0	4
10:30	6	0	0	0	0	6	22:30	5	0	0	0	0	5
10:45	7	0	0	0	0	7	22:45	3	0	0	0	0	3
11:00	8	1	0	0	0	9	23:00	7	0	0	0	0	7
11:15	1	0	0	0	0	1	23:15	5	0	0	0	0	5
11:30	5	0	0	0	0	5	23:30	5	0	0	0	0	5
11:45	11	0	0	0	0	11	23:45	2	0	0	0	0	2
TOTAL	183	4	0	0	0	187	TOTAL	570	1	0	0	0	571

AM PEAK HOUR	8:00 AM
AM PEAK VOLUME	46

AM PEAK HOUR	5:15 PM
AM PEAK VOLUME	76

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

	1	2	3	4	5	TOTAL
TOTAL: AM+PM	753	5	0	0	0	758
% OF TOTAL	99.3%	0.7%	0.0%	0.0%	0.0%	100.0%
AM PEAK	45	1	0	0	0	46
PM PEAK	72	0	0	0	0	72

A13123

Study Site 6 - Stonegate Apartments

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS71 Northern dwy west of Doolittle

AM TIME	OUT 1	2	3	4	5	TOTAL	PM Time	OUT 1	2	3	4	5	TOTAL
0:00	0	0	0	0	0	0	12:00	9	0	0	0	0	9
0:15	0	0	0	0	0	0	12:15	13	0	0	0	0	13
0:30	0	0	0	0	0	0	12:30	13	1	0	0	0	14
0:45	2	0	0	0	0	2	12:45	17	0	0	0	0	17
1:00	0	0	0	0	0	0	13:00	6	0	0	0	0	6
1:15	2	0	0	0	0	2	13:15	12	0	0	0	0	12
1:30	1	0	0	0	0	1	13:30	14	1	0	0	0	15
1:45	1	0	0	0	0	1	13:45	20	0	0	0	0	20
2:00	0	0	0	0	0	0	14:00	12	0	0	0	0	12
2:15	3	0	0	0	0	3	14:15	8	0	0	0	0	8
2:30	1	0	0	0	0	1	14:30	13	0	0	0	0	13
2:45	0	0	0	0	0	0	14:45	6	1	0	0	0	7
3:00	0	0	0	0	0	0	15:00	13	0	0	0	0	13
3:15	6	0	0	0	0	6	15:15	12	0	0	0	0	12
3:30	5	0	0	0	0	5	15:30	13	0	0	0	0	13
3:45	6	0	0	0	0	6	15:45	11	0	0	0	0	11
4:00	5	0	0	0	0	5	16:00	12	0	0	0	0	12
4:15	4	0	0	0	0	4	16:15	9	0	0	0	0	9
4:30	6	0	0	0	0	6	16:30	6	0	0	0	0	6
4:45	4	0	0	0	0	4	16:45	12	0	0	0	0	12
5:00	6	0	0	0	0	6	17:00	8	0	0	0	0	8
5:15	7	0	0	0	0	7	17:15	13	0	0	0	0	13
5:30	11	0	0	0	0	11	17:30	14	0	0	0	0	14
5:45	12	0	0	0	0	12	17:45	8	0	0	0	0	8
6:00	1	0	0	0	0	1	18:00	11	0	0	0	0	11
6:15	7	0	0	0	0	7	18:15	9	0	0	0	0	9
6:30	12	0	0	0	0	12	18:30	5	0	0	0	0	5
6:45	17	0	0	0	0	17	18:45	7	0	0	0	0	7
7:00	8	0	0	0	0	8	19:00	8	0	0	0	0	8
7:15	16	0	0	0	0	16	19:15	9	0	0	0	0	9
7:30	21	0	0	0	0	21	19:30	6	0	0	0	0	6
7:45	18	0	0	0	0	18	19:45	8	0	0	0	0	8
8:00	13	0	0	0	0	13	20:00	6	0	0	0	0	6
8:15	5	0	0	0	0	5	20:15	11	0	0	0	0	11
8:30	7	0	0	0	0	7	20:30	7	0	0	0	0	7
8:45	8	0	0	0	0	8	20:45	6	0	0	0	0	6
9:00	10	0	1	0	0	11	21:00	4	0	0	0	0	4
9:15	14	0	0	0	0	14	21:15	4	0	0	0	0	4
9:30	7	1	0	0	0	8	21:30	3	1	0	0	0	4
9:45	7	0	0	0	0	7	21:45	5	1	0	0	0	6
10:00	7	1	0	0	0	8	22:00	4	0	0	0	0	4
10:15	5	1	0	0	0	6	22:15	2	0	0	0	0	2
10:30	5	1	0	0	0	6	22:30	3	0	0	0	0	3
10:45	10	2	0	0	0	12	22:45	0	0	0	0	0	0
11:00	5	1	0	0	0	6	23:00	6	0	0	0	0	6
11:15	4	0	0	0	0	4	23:15	0	0	0	0	0	0
11:30	7	1	0	0	0	8	23:30	2	0	0	0	0	2
11:45	13	0	0	0	0	13	23:45	1	0	0	0	0	1
TOTAL	309	8	1	0	0	318	TOTAL	401	5	0	0	0	406

AM PEAK HOUR	7:15 AM
AM PEAK VOLUME	68

AM PEAK HOUR	1:15 PM
AM PEAK VOLUME	59

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

	1	2	3	4	5	TOTAL
TOTAL: AM+PM	710	13	1	0	0	724
% OF TOTAL	98.1%	1.8%	0.1%	0.0%	0.0%	100.0%
AM PEAK	68	0	0	0	0	68
PM PEAK	47	0	0	0	0	47

A021323

Study Site 6 - Stonegate Apartments

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS72 Southern dwy west of Doolittle

AM TIME	IN 1	2	3	4	5	TOTAL	PM Time	IN 1	2	3	4	5	TOTAL
0:00	2	0	0	0	0	2	12:00	19	1	0	0	0	20
0:15	1	0	0	0	0	1	12:15	16	1	0	0	0	17
0:30	2	0	0	0	0	2	12:30	16	0	0	0	0	16
0:45	2	0	0	0	0	2	12:45	11	0	0	0	0	11
1:00	2	0	0	0	0	2	13:00	12	0	0	0	0	12
1:15	1	0	0	0	0	1	13:15	18	0	0	0	0	18
1:30	0	0	0	0	0	0	13:30	13	1	0	0	0	14
1:45	0	0	0	0	0	0	13:45	5	0	0	0	0	5
2:00	2	0	0	0	0	2	14:00	18	0	0	0	0	18
2:15	1	0	0	0	0	1	14:15	13	0	0	0	0	13
2:30	0	0	0	0	0	0	14:30	15	0	0	0	0	15
2:45	0	0	0	0	0	0	14:45	17	1	0	0	0	18
3:00	0	0	0	0	0	0	15:00	21	0	0	0	0	21
3:15	2	0	0	0	0	2	15:15	19	2	0	0	0	21
3:30	0	0	0	0	0	0	15:30	11	0	0	0	0	11
3:45	1	0	0	0	0	1	15:45	19	1	0	0	0	20
4:00	1	0	0	0	0	1	16:00	24	0	0	0	0	24
4:15	0	0	0	0	0	0	16:15	13	0	0	0	0	13
4:30	0	0	0	0	0	0	16:30	9	0	0	0	0	9
4:45	0	0	0	0	0	0	16:45	18	0	0	0	0	18
5:00	1	0	0	0	0	1	17:00	24	0	0	0	0	24
5:15	1	0	0	0	0	1	17:15	15	0	0	0	0	15
5:30	2	0	0	0	0	2	17:30	21	0	0	0	0	21
5:45	1	0	0	0	0	1	17:45	23	0	0	0	0	23
6:00	0	0	0	0	0	0	18:00	12	0	0	0	0	12
6:15	4	0	0	0	0	4	18:15	13	0	0	0	0	13
6:30	3	0	0	0	0	3	18:30	12	0	0	0	0	12
6:45	3	0	0	0	0	3	18:45	11	0	0	0	0	11
7:00	4	0	0	0	0	4	19:00	13	0	0	0	0	13
7:15	4	2	0	0	0	6	19:15	21	0	0	0	0	21
7:30	6	1	0	0	0	7	19:30	5	0	0	0	0	5
7:45	4	0	0	0	0	4	19:45	10	0	0	0	0	10
8:00	13	0	0	0	0	13	20:00	13	1	0	0	0	14
8:15	11	0	0	0	0	11	20:15	12	0	0	0	0	12
8:30	10	0	1	0	0	11	20:30	17	0	0	0	0	17
8:45	6	0	0	0	0	6	20:45	10	0	0	0	0	10
9:00	10	0	0	0	0	10	21:00	11	0	0	0	0	11
9:15	13	0	0	0	0	13	21:15	8	1	0	0	0	9
9:30	10	1	0	0	0	11	21:30	1	0	0	0	0	1
9:45	7	0	0	0	0	7	21:45	9	0	0	0	0	9
10:00	5	0	1	0	0	6	22:00	4	0	0	0	0	4
10:15	10	2	0	0	0	12	22:15	2	0	0	0	0	2
10:30	21	1	0	0	0	22	22:30	5	0	0	0	0	5
10:45	7	1	0	0	0	8	22:45	5	0	0	0	0	5
11:00	14	0	0	0	0	14	23:00	3	0	0	0	0	3
11:15	10	2	0	0	0	12	23:15	2	0	0	0	0	2
11:30	18	1	0	0	0	19	23:30	4	0	0	0	0	4
11:45	10	0	0	0	0	10	23:45	1	0	0	0	0	1
TOTAL	225	11	2	0	0	238	TOTAL	594	9	0	0	0	603

AM PEAK HOUR	10:30 AM
AM PEAK VOLUME	56

AM PEAK HOUR	5:00 PM
AM PEAK VOLUME	83

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

TOTAL: AM+PM	819	20	2	0	0	841
% OF TOTAL	97.4%	2.4%	0.2%	0.0%	0.0%	100.0%
AM PEAK	38	0	1	0	0	39
PM PEAK	83	0	0	0	0	83

A13123

Study Site 6 - Stonegate Apartments

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS72 Southern dwy west of Doolittle

AM TIME	OUT 1	2	3	4	5	TOTAL	PM Time	OUT 1	2	3	4	5	TOTAL
0:00	0	0	0	0	0	0	12:00	14	0	0	0	0	14
0:15	1	0	0	0	0	1	12:15	3	0	0	0	0	3
0:30	2	0	0	0	0	2	12:30	5	0	0	0	0	5
0:45	2	0	0	0	0	2	12:45	16	0	0	0	0	16
1:00	0	0	0	0	0	0	13:00	4	0	0	0	0	4
1:15	2	0	0	0	0	2	13:15	8	0	0	0	0	8
1:30	0	0	0	0	0	0	13:30	6	0	0	0	0	6
1:45	1	0	0	0	0	1	13:45	11	1	0	0	0	12
2:00	2	0	0	0	0	2	14:00	5	0	0	0	0	5
2:15	1	0	0	0	0	1	14:15	6	0	0	0	0	6
2:30	0	0	0	0	0	0	14:30	10	0	0	0	0	10
2:45	0	0	0	0	0	0	14:45	6	0	0	0	0	6
3:00	0	0	0	0	0	0	15:00	6	0	0	0	0	6
3:15	0	0	0	0	0	0	15:15	3	0	0	0	0	3
3:30	3	0	0	0	0	3	15:30	10	0	0	0	0	10
3:45	3	0	0	0	0	3	15:45	12	0	0	0	0	12
4:00	6	1	0	0	0	7	16:00	12	0	0	0	0	12
4:15	2	0	0	0	0	2	16:15	8	0	0	0	0	8
4:30	2	0	0	0	0	2	16:30	8	0	0	0	0	8
4:45	2	0	0	0	0	2	16:45	12	0	0	0	0	12
5:00	0	0	0	0	0	0	17:00	7	0	0	0	0	7
5:15	5	0	0	0	0	5	17:15	8	0	0	0	0	8
5:30	7	0	0	0	0	7	17:30	8	0	0	0	0	8
5:45	5	0	0	0	0	5	17:45	6	0	0	0	0	6
6:00	5	0	0	0	0	5	18:00	8	0	0	0	0	8
6:15	4	0	0	0	0	4	18:15	9	0	0	0	0	9
6:30	12	0	0	0	0	12	18:30	6	0	0	0	0	6
6:45	4	0	0	0	0	4	18:45	6	0	0	0	0	6
7:00	5	0	0	0	0	5	19:00	4	0	0	0	0	4
7:15	6	0	0	0	0	6	19:15	9	0	0	0	0	9
7:30	11	0	0	0	0	11	19:30	8	0	0	0	0	8
7:45	18	0	0	0	0	18	19:45	4	0	0	0	0	4
8:00	8	0	0	0	0	8	20:00	3	0	0	0	0	3
8:15	11	0	0	0	0	11	20:15	5	0	0	0	0	5
8:30	11	0	0	0	0	11	20:30	5	0	0	0	0	5
8:45	1	0	0	0	0	1	20:45	2	0	0	0	0	2
9:00	4	0	0	0	0	4	21:00	3	0	0	0	0	3
9:15	9	0	0	0	0	9	21:15	2	0	0	0	0	2
9:30	8	0	0	0	0	8	21:30	5	0	0	0	0	5
9:45	8	0	0	0	0	8	21:45	4	0	0	0	0	4
10:00	3	0	0	0	0	3	22:00	3	0	0	0	0	3
10:15	10	0	0	0	0	10	22:15	3	0	0	0	0	3
10:30	9	0	0	0	0	9	22:30	2	0	0	0	0	2
10:45	9	0	0	0	0	9	22:45	4	0	0	0	0	4
11:00	7	0	0	0	0	7	23:00	2	0	0	0	0	2
11:15	10	0	0	0	0	10	23:15	2	0	0	0	0	2
11:30	8	0	0	0	0	8	23:30	3	0	0	0	0	3
11:45	8	0	0	0	0	8	23:45	0	0	0	0	0	0
TOTAL	235	1	0	0	0	236	TOTAL	296	1	0	0	0	297

AM PEAK HOUR	7:45 AM
AM PEAK VOLUME	48

AM PEAK HOUR	3:30 PM
AM PEAK VOLUME	42

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

	1	2	3	4	5	TOTAL
TOTAL: AM+PM	531	2	0	0	0	533
% OF TOTAL	99.6%	0.4%	0.0%	0.0%	0.0%	100.0%
AM PEAK	48	0	0	0	0	48
PM PEAK	40	0	0	0	0	40

A021323

Study Site 7 - River's Edge Apartment Homes

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS82 Dwy east of Elm.

AM	IN						PM	IN					
TIME	1	2	3	4	5	TOTAL	Time	1	2	3	4	5	TOTAL
0:00	0	0	0	0	0	0	12:00	0	0	0	0	0	0
0:15	0	0	0	0	0	0	12:15	0	0	0	0	0	0
0:30	0	0	0	0	0	0	12:30	0	0	0	0	0	0
0:45	0	0	0	0	0	0	12:45	0	0	0	0	0	0
1:00	0	0	0	0	0	0	13:00	0	0	0	0	0	0
1:15	0	0	0	0	0	0	13:15	0	0	0	0	0	0
1:30	0	0	0	0	0	0	13:30	0	0	0	0	0	0
1:45	0	0	0	0	0	0	13:45	0	0	0	0	0	0
2:00	0	0	0	0	0	0	14:00	0	0	0	0	0	0
2:15	0	0	0	0	0	0	14:15	0	0	0	0	0	0
2:30	0	0	0	0	0	0	14:30	0	0	0	0	0	0
2:45	0	0	0	0	0	0	14:45	0	0	0	0	0	0
3:00	0	0	0	0	0	0	15:00	0	0	0	0	0	0
3:15	0	0	0	0	0	0	15:15	0	0	0	0	0	0
3:30	0	0	0	0	0	0	15:30	0	0	0	0	0	0
3:45	0	0	0	0	0	0	15:45	0	0	0	0	0	0
4:00	0	0	0	0	0	0	16:00	0	0	0	0	0	0
4:15	0	0	0	0	0	0	16:15	0	0	0	0	0	0
4:30	0	0	0	0	0	0	16:30	0	0	0	0	0	0
4:45	0	0	0	0	0	0	16:45	0	0	0	0	0	0
5:00	0	0	0	0	0	0	17:00	0	0	0	0	0	0
5:15	0	0	0	0	0	0	17:15	0	0	0	0	0	0
5:30	0	0	0	0	0	0	17:30	0	0	0	0	0	0
5:45	0	0	0	0	0	0	17:45	0	0	0	0	0	0
6:00	0	0	0	0	0	0	18:00	0	0	0	0	0	0
6:15	0	0	0	0	0	0	18:15	0	0	0	0	0	0
6:30	0	0	0	0	0	0	18:30	0	0	0	0	0	0
6:45	0	0	0	0	0	0	18:45	0	0	0	0	0	0
7:00	0	0	0	0	0	0	19:00	0	0	0	0	0	0
7:15	0	0	0	0	0	0	19:15	0	0	0	0	0	0
7:30	0	0	0	0	0	0	19:30	0	0	0	0	0	0
7:45	0	0	0	0	0	0	19:45	0	0	0	0	0	0
8:00	0	0	0	0	0	0	20:00	0	0	0	0	0	0
8:15	0	0	0	0	0	0	20:15	0	0	0	0	0	0
8:30	1	0	0	0	0	1	20:30	0	0	0	0	0	0
8:45	0	0	0	0	0	0	20:45	0	0	0	0	0	0
9:00	0	0	0	0	0	0	21:00	0	0	0	0	0	0
9:15	0	0	0	0	0	0	21:15	0	0	0	0	0	0
9:30	0	0	0	0	0	0	21:30	0	0	0	0	0	0
9:45	0	0	0	0	0	0	21:45	0	0	0	0	0	0
10:00	0	0	0	0	0	0	22:00	0	0	0	0	0	0
10:15	0	0	0	0	0	0	22:15	0	0	0	0	0	0
10:30	0	0	0	0	0	0	22:30	0	0	0	0	0	0
10:45	0	0	0	0	0	0	22:45	0	0	0	0	0	0
11:00	0	0	0	0	0	0	23:00	0	0	0	0	0	0
11:15	1	0	0	0	0	1	23:15	0	0	0	0	0	0
11:30	0	0	0	0	0	0	23:30	0	0	0	0	0	0
11:45	0	0	0	0	0	0	23:45	0	0	0	0	0	0
TOTAL	2	0	0	0	0	2	TOTAL	0	0	0	0	0	0

AM PEAK HOUR	11:15 AM
AM PEAK VOLUME	1

AM PEAK HOUR	11:45 PM
AM PEAK VOLUME	0

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

TOTAL: AM+PM	2	0	0	0	0	2
% OF TOTAL	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
AM PEAK	1	0	0	0	0	1
PM PEAK	0	0	0	0	0	0

A13123

Study Site 7 - River's Edge Apartment Homes

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS82 Dwy east of Elm.

AM	OUT					
TIME	1	2	3	4	5	TOTAL
0:00	0	0	0	0	0	0
0:15	0	0	0	0	0	0
0:30	0	0	0	0	0	0
0:45	0	0	0	0	0	0
1:00	0	0	0	0	0	0
1:15	0	0	0	0	0	0
1:30	0	0	0	0	0	0
1:45	0	0	0	0	0	0
2:00	0	0	0	0	0	0
2:15	1	0	0	0	0	1
2:30	0	0	0	0	0	0
2:45	1	0	0	0	0	1
3:00	0	0	0	0	0	0
3:15	0	0	0	0	0	0
3:30	0	0	0	0	0	0
3:45	0	0	0	0	0	0
4:00	0	0	0	0	0	0
4:15	0	0	0	0	0	0
4:30	0	0	0	0	0	0
4:45	0	0	0	0	0	0
5:00	0	0	0	0	0	0
5:15	0	0	0	0	0	0
5:30	0	0	0	0	0	0
5:45	2	0	0	0	0	2
6:00	1	0	0	0	0	1
6:15	0	0	0	0	0	0
6:30	0	0	0	0	0	0
6:45	0	0	0	0	0	0
7:00	0	0	0	0	0	0
7:15	1	0	0	0	0	1
7:30	2	0	0	0	0	2
7:45	7	0	0	0	0	7
8:00	5	0	0	0	0	5
8:15	1	0	0	0	0	1
8:30	4	0	0	0	0	4
8:45	1	0	0	0	0	1
9:00	4	0	0	0	0	4
9:15	1	0	0	0	0	1
9:30	2	0	0	0	0	2
9:45	0	0	0	0	0	0
10:00	0	0	0	0	0	0
10:15	1	0	0	0	0	1
10:30	1	0	0	0	0	1
10:45	0	0	0	0	0	0
11:00	0	0	0	0	0	0
11:15	1	1	0	0	0	2
11:30	2	0	0	0	0	2
11:45	0	1	0	0	0	1
TOTAL	38	2	0	0	0	40

AM PEAK HOUR	7:45 AM
AM PEAK VOLUME	17

PM	OUT					
Time	1	2	3	4	5	TOTAL
12:00	0	0	0	0	0	0
12:15	2	1	0	0	0	3
12:30	2	0	0	0	0	2
12:45	1	0	0	0	0	1
13:00	0	0	0	0	0	0
13:15	1	0	0	0	0	1
13:30	1	0	0	0	0	1
13:45	4	0	0	0	0	4
14:00	1	0	0	0	0	1
14:15	4	0	0	0	0	4
14:30	0	0	0	0	0	0
14:45	1	1	0	0	0	2
15:00	3	0	0	0	0	3
15:15	3	0	0	1	0	4
15:30	2	0	0	0	0	2
15:45	2	0	0	0	0	2
16:00	3	0	0	0	0	3
16:15	3	0	0	0	0	3
16:30	1	1	0	0	0	2
16:45	2	0	0	0	0	2
17:00	0	0	0	0	0	0
17:15	0	0	0	0	0	0
17:30	2	0	0	0	0	2
17:45	0	0	0	0	0	0
18:00	3	0	0	0	0	3
18:15	0	0	0	0	0	0
18:30	1	0	0	0	0	1
18:45	2	0	0	0	0	2
19:00	3	0	0	0	0	3
19:15	1	0	0	0	0	1
19:30	1	0	0	0	0	1
19:45	1	0	0	0	0	1
20:00	0	0	0	0	0	0
20:15	1	0	0	0	0	1
20:30	2	0	0	0	0	2
20:45	2	0	0	0	0	2
21:00	1	0	0	0	0	1
21:15	1	0	0	0	0	1
21:30	0	0	0	0	0	0
21:45	4	0	0	0	0	4
22:00	1	0	0	0	0	1
22:15	0	0	0	0	0	0
22:30	1	0	0	0	0	1
22:45	0	0	0	0	0	0
23:00	0	0	0	0	0	0
23:15	0	0	0	0	0	0
23:30	2	0	0	0	0	2
23:45	0	0	0	0	0	0
TOTAL	65	3	0	1	0	69

AM PEAK HOUR	3:15 PM
AM PEAK VOLUME	11

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

TOTAL: AM+PM	103	5	0	1	0	109
% OF TOTAL	94.5%	4.6%	0.0%	0.9%	0.0%	100.0%
AM PEAK	17	0	0	0	0	17
PM PEAK	9	1	0	0	0	10

A021323

Study Site 7 - River's Edge Apartment Homes

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS83 Dwy south of Lakeshore.

AM	IN						PM	IN					
TIME	1	2	3	4	5	TOTAL	Time	1	2	3	4	5	TOTAL
0:00	3	0	0	0	0	3	12:00	23	3	0	0	0	26
0:15	2	0	0	0	0	2	12:15	17	2	0	0	0	19
0:30	4	0	0	0	0	4	12:30	22	0	0	0	0	22
0:45	3	0	0	0	0	3	12:45	15	0	0	0	0	15
1:00	2	0	0	0	0	2	13:00	17	0	0	0	0	17
1:15	2	0	0	0	0	2	13:15	17	2	0	0	0	19
1:30	0	0	0	0	0	0	13:30	15	0	0	0	0	15
1:45	3	0	0	0	0	3	13:45	36	0	0	0	0	36
2:00	2	0	0	0	0	2	14:00	29	0	0	0	0	29
2:15	2	0	0	0	0	2	14:15	25	2	0	0	0	27
2:30	3	0	0	0	0	3	14:30	13	2	0	0	0	15
2:45	5	0	0	0	0	5	14:45	32	1	0	1	0	34
3:00	2	0	0	0	0	2	15:00	27	0	0	0	0	27
3:15	0	0	0	0	0	0	15:15	19	0	0	0	0	19
3:30	1	0	0	0	0	1	15:30	25	1	0	0	0	26
3:45	1	0	0	0	0	1	15:45	43	0	0	0	0	43
4:00	2	0	0	0	0	2	16:00	36	0	0	0	0	36
4:15	1	0	0	0	0	1	16:15	23	1	0	0	0	24
4:30	2	0	0	0	0	2	16:30	41	0	0	0	0	41
4:45	2	1	0	0	0	3	16:45	35	0	0	0	0	35
5:00	3	0	0	0	0	3	17:00	42	2	0	0	0	44
5:15	3	0	0	0	0	3	17:15	35	0	0	0	0	35
5:30	2	0	0	0	0	2	17:30	32	0	0	0	0	32
5:45	7	0	0	0	0	7	17:45	27	0	0	0	0	27
6:00	6	0	0	0	0	6	18:00	45	0	0	0	0	45
6:15	6	0	0	0	0	6	18:15	40	0	0	0	0	40
6:30	3	0	0	0	0	3	18:30	35	1	0	0	0	36
6:45	1	0	0	0	0	1	18:45	30	0	0	0	0	30
7:00	8	1	0	0	0	9	19:00	32	0	0	0	0	32
7:15	4	1	0	0	0	5	19:15	29	0	0	0	0	29
7:30	21	0	0	0	0	21	19:30	23	0	0	0	0	23
7:45	28	0	0	0	0	28	19:45	27	0	0	0	0	27
8:00	17	0	0	0	0	17	20:00	37	1	0	0	0	38
8:15	28	0	0	0	0	28	20:15	18	0	0	0	0	18
8:30	11	0	0	0	0	11	20:30	20	0	0	0	0	20
8:45	14	1	0	0	0	15	20:45	20	0	0	0	0	20
9:00	13	0	0	0	0	13	21:00	31	0	0	0	0	31
9:15	15	1	0	0	0	16	21:15	14	0	0	0	0	14
9:30	12	2	0	0	0	14	21:30	17	0	0	0	0	17
9:45	14	1	0	0	0	15	21:45	15	0	0	0	0	15
10:00	15	3	0	0	0	18	22:00	14	0	0	0	0	14
10:15	15	1	0	0	0	16	22:15	9	0	0	0	0	9
10:30	10	2	0	0	0	12	22:30	11	0	0	0	0	11
10:45	10	1	0	0	0	11	22:45	10	0	0	0	0	10
11:00	12	2	0	0	0	14	23:00	6	0	0	0	0	6
11:15	12	0	0	0	0	12	23:15	10	0	0	0	0	10
11:30	22	0	0	0	0	22	23:30	5	0	0	0	0	5
11:45	26	0	0	0	0	26	23:45	7	0	0	0	0	7
TOTAL	380	17	0	0	0	397	TOTAL	1,151	18	0	1	0	1,170

AM PEAK HOUR	7:30 AM
AM PEAK VOLUME	94

AM PEAK HOUR	4:30 PM
AM PEAK VOLUME	155

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

TOTAL: AM+PM	1,531	35	0	1	0	1,567
% OF TOTAL	97.7%	2.2%	0.0%	0.1%	0.0%	100.0%
AM PEAK	94	0	0	0	0	94
PM PEAK	153	2	0	0	0	155

A13123

Study Site 7 - River's Edge Apartment Homes

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS83 Dwy south of Lakeshore.

AM	OUT						PM	OUT					
TIME	1	2	3	4	5	TOTAL	Time	1	2	3	4	5	TOTAL
0:00	7	0	0	0	0	7	12:00	21	0	0	0	0	21
0:15	1	0	0	0	0	1	12:15	15	0	0	0	0	15
0:30	1	0	0	0	0	1	12:30	20	1	0	0	0	21
0:45	0	0	0	0	0	0	12:45	14	1	0	0	0	15
1:00	1	0	0	0	0	1	13:00	15	0	0	0	0	15
1:15	3	0	0	0	0	3	13:15	16	0	0	0	0	16
1:30	2	0	0	0	0	2	13:30	22	1	0	0	0	23
1:45	2	0	0	0	0	2	13:45	24	1	0	0	0	25
2:00	2	0	0	0	0	2	14:00	23	0	0	0	0	23
2:15	0	0	0	0	0	0	14:15	15	0	0	0	0	15
2:30	0	0	0	0	0	0	14:30	25	1	0	0	0	26
2:45	1	0	0	0	0	1	14:45	26	1	0	0	0	27
3:00	2	0	0	0	0	2	15:00	18	1	0	0	0	19
3:15	5	0	0	0	0	5	15:15	31	0	0	0	0	31
3:30	3	0	0	0	0	3	15:30	23	0	0	0	0	23
3:45	6	0	0	0	0	6	15:45	31	1	0	0	0	32
4:00	3	0	0	0	0	3	16:00	15	0	0	0	0	15
4:15	9	0	0	0	0	9	16:15	23	0	0	0	0	23
4:30	9	0	0	0	0	9	16:30	25	0	0	0	0	25
4:45	17	0	0	0	0	17	16:45	27	0	0	0	0	27
5:00	7	0	0	0	0	7	17:00	32	0	0	0	0	32
5:15	13	0	0	0	0	13	17:15	25	0	0	0	0	25
5:30	15	1	0	0	0	16	17:30	18	0	0	0	0	18
5:45	13	0	0	0	0	13	17:45	20	0	0	0	0	20
6:00	12	1	0	0	0	13	18:00	18	0	0	0	0	18
6:15	19	0	0	0	0	19	18:15	24	0	0	0	0	24
6:30	23	0	0	0	0	23	18:30	25	1	0	0	0	26
6:45	16	1	0	0	0	17	18:45	16	0	0	0	0	16
7:00	13	2	0	0	0	15	19:00	9	0	0	0	0	9
7:15	35	0	0	0	0	35	19:15	11	0	0	0	0	11
7:30	55	0	0	0	0	55	19:30	11	0	0	0	0	11
7:45	40	0	0	0	0	40	19:45	15	0	0	0	0	15
8:00	35	0	0	0	0	35	20:00	9	0	0	0	0	9
8:15	20	0	0	0	0	20	20:15	13	0	0	0	0	13
8:30	17	0	0	0	0	17	20:30	15	1	0	0	0	16
8:45	18	0	0	0	0	18	20:45	13	0	0	0	0	13
9:00	21	0	0	0	0	21	21:00	12	0	0	0	0	12
9:15	28	0	0	0	0	28	21:15	7	0	0	0	0	7
9:30	24	1	0	0	0	25	21:30	6	1	0	0	0	7
9:45	13	0	0	0	0	13	21:45	7	0	0	0	0	7
10:00	21	2	0	0	0	23	22:00	7	0	0	0	0	7
10:15	26	3	0	0	0	29	22:15	6	0	0	0	0	6
10:30	16	2	0	0	0	18	22:30	5	0	0	0	0	5
10:45	16	3	0	0	0	19	22:45	7	0	0	0	0	7
11:00	15	0	0	0	0	15	23:00	6	0	0	0	0	6
11:15	14	1	0	0	0	15	23:15	3	0	0	0	0	3
11:30	21	0	0	0	0	21	23:30	4	0	0	0	0	4
11:45	16	1	0	0	0	17	23:45	2	0	0	0	0	2
TOTAL	656	18	0	0	0	674	TOTAL	775	11	0	0	0	786

AM PEAK HOUR	7:15 AM
AM PEAK VOLUME	165

AM PEAK HOUR	4:30 PM
AM PEAK VOLUME	109

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

TOTAL: AM+PM	1,431	29	0	0	0	1,460
% OF TOTAL	98.0%	2.0%	0.0%	0.0%	0.0%	100.0%
AM PEAK	165	0	0	0	0	165
PM PEAK	109	0	0	0	0	109

A021323

Study Site 8 - Mayberry Colony Apartments

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS90 Western Dwy south of Mayberry.

AM	IN					
TIME	1	2	3	4	5	TOTAL
0:00	1	0	0	0	0	1
0:15	1	0	0	0	0	1
0:30	2	0	0	0	0	2
0:45	0	0	0	0	0	0
1:00	1	0	0	0	0	1
1:15	3	0	0	0	0	3
1:30	0	0	0	0	0	0
1:45	1	0	0	0	0	1
2:00	0	0	0	0	0	0
2:15	3	0	0	0	0	3
2:30	2	0	0	0	0	2
2:45	0	0	0	0	0	0
3:00	4	0	0	0	0	4
3:15	1	0	0	0	0	1
3:30	3	0	0	0	0	3
3:45	1	0	0	0	0	1
4:00	0	0	0	0	0	0
4:15	0	0	0	0	0	0
4:30	0	0	0	0	0	0
4:45	2	0	0	0	0	2
5:00	0	0	0	0	0	0
5:15	2	0	0	0	0	2
5:30	0	0	0	0	0	0
5:45	0	0	0	0	0	0
6:00	3	0	0	0	0	3
6:15	5	0	0	0	0	5
6:30	6	0	0	0	0	6
6:45	0	0	0	0	0	0
7:00	2	0	0	0	0	2
7:15	5	0	0	0	0	5
7:30	12	0	0	0	0	12
7:45	3	0	0	0	0	3
8:00	4	0	0	0	0	4
8:15	7	0	0	0	0	7
8:30	11	0	0	0	0	11
8:45	1	0	0	0	0	1
9:00	5	0	0	0	0	5
9:15	3	0	0	0	0	3
9:30	2	0	0	0	0	2
9:45	4	0	0	0	0	4
10:00	5	0	0	0	0	5
10:15	2	2	0	0	0	4
10:30	5	0	0	0	0	5
10:45	3	0	0	0	0	3
11:00	5	0	0	0	0	5
11:15	6	0	0	0	0	6
11:30	6	0	0	0	0	6
11:45	3	0	0	0	0	3
TOTAL	135	2	0	0	0	137

AM PEAK HOUR	7:30 AM
AM PEAK VOLUME	26

PM	IN					
Time	1	2	3	4	5	TOTAL
12:00	3	0	0	0	0	3
12:15	12	0	0	0	0	12
12:30	6	0	0	0	0	6
12:45	3	0	0	0	0	3
13:00	1	0	0	0	0	1
13:15	10	0	0	1	0	11
13:30	9	0	0	0	0	9
13:45	6	0	0	0	0	6
14:00	10	0	0	0	0	10
14:15	8	0	0	0	0	8
14:30	12	0	0	0	0	12
14:45	18	0	0	0	0	18
15:00	13	0	0	0	0	13
15:15	7	0	0	0	0	7
15:30	17	1	0	0	0	18
15:45	17	0	0	0	0	17
16:00	6	0	0	0	0	6
16:15	8	0	0	0	0	8
16:30	9	0	0	0	0	9
16:45	15	0	0	0	0	15
17:00	9	0	0	0	0	9
17:15	10	0	0	0	0	10
17:30	14	0	0	0	0	14
17:45	11	0	0	0	0	11
18:00	8	1	0	0	0	9
18:15	12	0	0	0	0	12
18:30	9	0	0	0	0	9
18:45	8	1	0	0	0	9
19:00	4	0	0	0	0	4
19:15	9	0	0	0	0	9
19:30	8	0	0	0	0	8
19:45	7	0	0	0	0	7
20:00	8	0	0	0	0	8
20:15	2	0	0	0	0	2
20:30	9	0	0	0	0	9
20:45	5	0	0	0	0	5
21:00	7	0	0	0	0	7
21:15	3	0	0	0	0	3
21:30	1	0	0	0	0	1
21:45	2	0	0	0	0	2
22:00	2	0	0	0	0	2
22:15	2	0	0	0	0	2
22:30	3	0	0	0	0	3
22:45	4	0	0	0	0	4
23:00	3	0	0	0	0	3
23:15	5	0	0	0	0	5
23:30	4	0	0	0	0	4
23:45	1	0	0	0	0	1
TOTAL	360	3	0	1	0	364

AM PEAK HOUR	2:45 PM
AM PEAK VOLUME	56

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

TOTAL: AM+PM	495	5	0	1	0	501
% OF TOTAL	98.8%	1.0%	0.0%	0.2%	0.0%	100.0%
AM PEAK	26	0	0	0	0	26
PM PEAK	44	0	0	0	0	44

A13123

Study Site 8 - Mayberry Colony Apartments

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS90 Western Dwy south of Mayberry.

AM	OUT					
TIME	1	2	3	4	5	TOTAL
0:00	0	0	0	0	0	0
0:15	1	0	0	0	0	1
0:30	0	0	0	0	0	0
0:45	1	0	0	0	0	1
1:00	0	0	0	0	0	0
1:15	1	0	0	0	0	1
1:30	0	0	0	0	0	0
1:45	2	0	0	0	0	2
2:00	0	0	0	0	0	0
2:15	0	0	0	0	0	0
2:30	0	0	0	0	0	0
2:45	3	0	0	0	0	3
3:00	2	0	0	0	0	2
3:15	5	0	0	0	0	5
3:30	5	0	0	0	0	5
3:45	4	0	0	0	0	4
4:00	0	0	0	0	0	0
4:15	5	0	0	0	0	5
4:30	7	0	0	0	0	7
4:45	3	0	0	0	0	3
5:00	8	0	0	0	0	8
5:15	0	0	0	0	0	0
5:30	2	0	0	0	0	2
5:45	6	0	0	0	0	6
6:00	4	0	0	0	0	4
6:15	3	0	0	0	0	3
6:30	9	0	0	0	0	9
6:45	8	0	0	0	0	8
7:00	7	0	0	0	0	7
7:15	21	0	0	0	0	21
7:30	4	0	0	0	0	4
7:45	7	0	0	0	0	7
8:00	21	0	0	0	0	21
8:15	10	0	0	0	0	10
8:30	8	0	0	1	0	9
8:45	7	0	0	0	0	7
9:00	9	0	0	0	0	9
9:15	5	0	0	0	0	5
9:30	3	0	0	0	0	3
9:45	2	0	0	0	0	2
10:00	9	1	0	0	0	10
10:15	4	3	0	0	0	7
10:30	2	1	0	0	0	3
10:45	9	0	0	0	0	9
11:00	11	0	0	0	0	11
11:15	2	0	0	0	0	2
11:30	5	0	0	0	0	5
11:45	8	0	0	0	0	8
TOTAL	233	5	0	1	0	239

AM PEAK HOUR	7:15 AM
AM PEAK VOLUME	53

PM	OUT					
Time	1	2	3	4	5	TOTAL
12:00	11	0	0	0	0	11
12:15	11	0	0	0	0	11
12:30	9	0	0	0	0	9
12:45	8	0	0	0	0	8
13:00	6	0	0	0	0	6
13:15	6	0	0	0	0	6
13:30	3	0	0	0	0	3
13:45	7	0	0	0	0	7
14:00	12	0	0	0	0	12
14:15	14	0	0	0	0	14
14:30	10	0	0	0	0	10
14:45	11	0	0	0	0	11
15:00	10	0	0	0	0	10
15:15	9	0	0	0	0	9
15:30	8	0	0	0	0	8
15:45	7	0	0	0	0	7
16:00	11	0	0	0	0	11
16:15	10	0	0	0	0	10
16:30	10	0	0	0	0	10
16:45	8	0	0	0	0	8
17:00	16	0	0	0	0	16
17:15	13	1	0	0	0	14
17:30	12	0	0	0	0	12
17:45	13	0	0	0	0	13
18:00	11	0	0	0	0	11
18:15	5	0	0	0	0	5
18:30	7	0	0	0	0	7
18:45	12	0	0	0	0	12
19:00	8	0	0	0	0	8
19:15	5	0	0	0	0	5
19:30	7	0	0	0	0	7
19:45	6	0	0	0	0	6
20:00	5	0	0	0	0	5
20:15	7	0	0	0	0	7
20:30	6	0	0	0	0	6
20:45	3	0	0	0	0	3
21:00	1	0	0	0	0	1
21:15	5	0	0	0	0	5
21:30	3	0	0	0	0	3
21:45	5	0	0	0	0	5
22:00	1	0	0	0	0	1
22:15	1	0	0	0	0	1
22:30	0	0	0	0	0	0
22:45	2	0	0	0	0	2
23:00	2	0	0	0	0	2
23:15	4	0	0	0	0	4
23:30	5	0	0	0	0	5
23:45	2	0	0	0	0	2
TOTAL	348	1	0	0	0	349

AM PEAK HOUR	5:00 PM
AM PEAK VOLUME	55

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

TOTAL: AM+PM	581	6	0	1	0	588
% OF TOTAL	98.8%	1.0%	0.0%	0.2%	0.0%	100.0%
AM PEAK	53	0	0	0	0	53
PM PEAK	54	1	0	0	0	55

A021323

Study Site 8 - Mayberry Colony Apartments

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS91 Eastern Dwy south of Mayberry.

AM	IN					
TIME	1	2	3	4	5	TOTAL
0:00	3	0	0	0	0	3
0:15	3	0	0	0	0	3
0:30	1	0	0	0	0	1
0:45	1	0	0	0	0	1
1:00	0	0	0	0	0	0
1:15	4	0	0	0	0	4
1:30	0	0	0	0	0	0
1:45	1	0	0	0	0	1
2:00	1	0	0	0	0	1
2:15	1	0	0	0	0	1
2:30	0	0	0	0	0	0
2:45	1	0	0	0	0	1
3:00	0	0	0	0	0	0
3:15	0	0	0	0	0	0
3:30	3	0	0	0	0	3
3:45	0	0	0	0	0	0
4:00	0	0	0	0	0	0
4:15	1	0	0	0	0	1
4:30	1	0	0	0	0	1
4:45	0	0	0	0	0	0
5:00	0	0	0	0	0	0
5:15	0	0	0	0	0	0
5:30	3	0	0	0	0	3
5:45	3	0	0	0	0	3
6:00	0	0	0	0	0	0
6:15	0	0	0	0	0	0
6:30	2	0	0	0	0	2
6:45	0	0	0	0	0	0
7:00	12	0	0	0	0	12
7:15	7	0	0	0	0	7
7:30	4	0	0	0	0	4
7:45	8	0	0	0	0	8
8:00	3	0	0	0	0	3
8:15	6	0	0	0	0	6
8:30	6	0	0	1	0	7
8:45	7	0	0	0	0	7
9:00	5	0	0	0	0	5
9:15	3	0	0	0	0	3
9:30	5	0	0	0	0	5
9:45	3	2	0	0	0	5
10:00	2	0	0	0	0	2
10:15	3	2	0	0	0	5
10:30	5	0	0	0	0	5
10:45	4	0	0	0	0	4
11:00	2	0	0	0	0	2
11:15	3	0	0	0	0	3
11:30	7	0	0	0	0	7
11:45	3	0	0	0	0	3
TOTAL	127	4	0	1	0	132

AM PEAK HOUR	7:00 AM
AM PEAK VOLUME	31

PM	IN					
Time	1	2	3	4	5	TOTAL
12:00	8	0	0	0	0	8
12:15	8	0	0	0	0	8
12:30	3	0	0	0	0	3
12:45	5	0	0	0	0	5
13:00	7	0	0	0	0	7
13:15	4	0	0	0	0	4
13:30	7	0	0	0	0	7
13:45	2	0	0	0	0	2
14:00	9	0	0	0	0	9
14:15	14	0	0	0	0	14
14:30	14	0	0	0	0	14
14:45	8	0	0	0	0	8
15:00	2	0	0	0	0	2
15:15	1	0	0	0	0	1
15:30	3	0	0	0	0	3
15:45	3	0	0	0	0	3
16:00	9	0	0	0	0	9
16:15	9	0	0	0	0	9
16:30	7	0	0	0	0	7
16:45	13	0	0	0	0	13
17:00	8	1	0	0	0	9
17:15	12	0	0	0	0	12
17:30	7	0	0	0	0	7
17:45	11	0	0	0	0	11
18:00	14	0	0	0	0	14
18:15	6	0	0	0	0	6
18:30	3	0	0	0	0	3
18:45	13	0	0	0	0	13
19:00	14	0	0	0	0	14
19:15	10	0	0	0	0	10
19:30	2	0	0	0	0	2
19:45	8	0	0	0	0	8
20:00	3	0	0	0	0	3
20:15	4	0	0	0	0	4
20:30	4	0	0	0	0	4
20:45	7	0	0	0	0	7
21:00	2	0	0	0	0	2
21:15	3	0	0	0	0	3
21:30	3	0	0	0	0	3
21:45	3	0	0	0	0	3
22:00	2	0	0	0	0	2
22:15	2	0	0	0	0	2
22:30	6	0	0	0	0	6
22:45	2	0	0	0	0	2
23:00	1	0	0	0	0	1
23:15	1	0	0	0	0	1
23:30	3	0	0	0	0	3
23:45	2	0	0	0	0	2
TOTAL	292	1	0	0	0	293

AM PEAK HOUR	2:00 PM
AM PEAK VOLUME	45

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

TOTAL: AM+PM	419	5	0	1	0	425
% OF TOTAL	98.6%	1.2%	0.0%	0.2%	0.0%	100.0%
AM PEAK	31	0	0	0	0	31
PM PEAK	40	1	0	0	0	41

A13123

Study Site 8 - Mayberry Colony Apartments

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS91 Eastern Dwy south of Mayberry.

AM	OUT					
TIME	1	2	3	4	5	TOTAL
0:00	0	0	0	0	0	0
0:15	0	0	0	0	0	0
0:30	1	0	0	0	0	1
0:45	0	0	0	0	0	0
1:00	0	0	0	0	0	0
1:15	0	0	0	0	0	0
1:30	1	0	0	0	0	1
1:45	0	0	0	0	0	0
2:00	0	0	0	0	0	0
2:15	0	0	0	0	0	0
2:30	2	0	0	0	0	2
2:45	1	0	0	0	0	1
3:00	1	0	0	0	0	1
3:15	0	0	0	0	0	0
3:30	0	0	0	0	0	0
3:45	0	0	0	0	0	0
4:00	1	0	0	0	0	1
4:15	1	0	0	0	0	1
4:30	1	0	0	0	0	1
4:45	3	0	0	0	0	3
5:00	1	0	0	0	0	1
5:15	3	0	0	0	0	3
5:30	3	0	0	0	0	3
5:45	7	0	0	0	0	7
6:00	2	0	0	0	0	2
6:15	2	0	0	0	0	2
6:30	3	0	0	0	0	3
6:45	9	0	0	0	0	9
7:00	11	0	0	0	0	11
7:15	9	0	0	0	0	9
7:30	10	0	0	0	0	10
7:45	6	0	0	0	0	6
8:00	1	0	0	0	0	1
8:15	3	0	0	0	0	3
8:30	11	0	0	0	0	11
8:45	13	0	0	0	0	13
9:00	2	0	0	0	0	2
9:15	2	0	0	0	0	2
9:30	4	0	0	0	0	4
9:45	4	0	0	0	0	4
10:00	1	0	0	0	0	1
10:15	7	1	0	0	0	8
10:30	5	0	0	0	0	5
10:45	5	0	0	0	0	5
11:00	1	0	0	0	0	1
11:15	3	0	0	0	0	3
11:30	4	0	0	0	0	4
11:45	3	0	0	0	0	3
TOTAL	147	1	0	0	0	148

AM PEAK HOUR	6:45 AM
AM PEAK VOLUME	39

PM	OUT					
Time	1	2	3	4	5	TOTAL
12:00	7	0	0	0	0	7
12:15	5	0	0	0	0	5
12:30	3	0	0	0	0	3
12:45	3	0	0	0	0	3
13:00	4	0	0	0	0	4
13:15	9	0	0	0	0	9
13:30	4	0	0	1	0	5
13:45	5	0	0	0	0	5
14:00	11	0	0	0	0	11
14:15	8	0	0	0	0	8
14:30	2	0	0	0	0	2
14:45	4	0	0	0	0	4
15:00	7	0	0	0	0	7
15:15	5	0	0	0	0	5
15:30	7	1	0	0	0	8
15:45	11	0	0	0	0	11
16:00	5	0	0	0	0	5
16:15	10	0	0	0	0	10
16:30	7	0	0	0	0	7
16:45	3	0	0	0	0	3
17:00	2	0	0	0	0	2
17:15	4	0	0	0	0	4
17:30	5	0	0	0	0	5
17:45	7	0	0	0	0	7
18:00	3	0	0	0	0	3
18:15	4	0	0	0	0	4
18:30	3	0	0	0	0	3
18:45	5	0	0	0	0	5
19:00	2	0	0	0	0	2
19:15	4	0	0	0	0	4
19:30	0	0	0	0	0	0
19:45	0	0	0	0	0	0
20:00	2	0	0	0	0	2
20:15	2	0	0	0	0	2
20:30	2	0	0	0	0	2
20:45	1	0	0	0	0	1
21:00	1	0	0	0	0	1
21:15	1	0	0	0	0	1
21:30	0	0	0	0	0	0
21:45	0	0	0	0	0	0
22:00	2	0	0	0	0	2
22:15	2	0	0	0	0	2
22:30	1	0	0	0	0	1
22:45	4	0	0	0	0	4
23:00	2	0	0	0	0	2
23:15	0	0	0	0	0	0
23:30	2	0	0	0	0	2
23:45	0	0	0	0	0	0
TOTAL	181	1	0	1	0	183

AM PEAK HOUR	3:30 PM
AM PEAK VOLUME	34

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

TOTAL: AM+PM	328	2	0	1	0	331
% OF TOTAL	99.1%	0.6%	0.0%	0.3%	0.0%	100.0%
AM PEAK	36	0	0	0	0	36
PM PEAK	25	0	0	0	0	25

A021323

Study Site 9 - Summit Ridge Apartments

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS92 DWY west of Hathaway.

AM	IN						PM	IN					
TIME	1	2	3	4	5	TOTAL	Time	1	2	3	4	5	TOTAL
0:00	1	0	0	0	0	1	12:00	9	0	0	0	0	9
0:15	1	0	0	0	0	1	12:15	6	0	1	0	0	7
0:30	2	0	0	0	0	2	12:30	7	0	0	0	0	7
0:45	2	0	0	0	0	2	12:45	5	0	0	0	0	5
1:00	2	0	0	0	0	2	13:00	4	0	0	0	0	4
1:15	1	0	0	0	0	1	13:15	3	0	0	0	0	3
1:30	0	0	0	0	0	0	13:30	8	0	0	0	0	8
1:45	0	0	0	0	0	0	13:45	7	1	0	0	0	8
2:00	1	0	0	0	0	1	14:00	10	1	0	0	0	11
2:15	0	0	0	0	0	0	14:15	5	0	0	0	0	5
2:30	0	0	0	0	0	0	14:30	11	0	0	0	0	11
2:45	0	0	0	0	0	0	14:45	4	0	0	0	0	4
3:00	1	0	0	0	0	1	15:00	5	0	0	0	0	5
3:15	1	0	0	0	0	1	15:15	6	0	0	0	0	6
3:30	0	0	0	0	0	0	15:30	13	0	0	0	0	13
3:45	1	0	0	0	0	1	15:45	12	0	0	0	0	12
4:00	0	0	0	0	0	0	16:00	13	0	0	0	0	13
4:15	1	0	0	0	0	1	16:15	7	0	0	0	0	7
4:30	3	0	0	0	0	3	16:30	9	0	0	0	0	9
4:45	2	0	0	0	0	2	16:45	3	0	0	0	0	3
5:00	0	0	0	0	0	0	17:00	7	0	0	0	0	7
5:15	1	0	0	0	0	1	17:15	8	0	0	0	0	8
5:30	1	0	0	0	0	1	17:30	7	0	0	0	0	7
5:45	1	0	0	0	0	1	17:45	7	0	0	0	0	7
6:00	0	0	0	0	0	0	18:00	8	0	0	0	0	8
6:15	1	0	1	0	0	2	18:15	5	0	0	0	0	5
6:30	1	0	0	0	0	1	18:30	9	0	0	0	0	9
6:45	2	0	0	0	0	2	18:45	7	0	0	0	0	7
7:00	3	0	0	0	0	3	19:00	4	1	0	0	0	5
7:15	2	0	0	0	0	2	19:15	7	0	0	0	0	7
7:30	2	0	0	0	0	2	19:30	9	0	0	0	0	9
7:45	4	0	0	0	0	4	19:45	6	0	0	0	0	6
8:00	5	0	0	0	0	5	20:00	10	0	0	0	0	10
8:15	7	0	0	0	0	7	20:15	7	0	0	0	0	7
8:30	3	0	0	0	0	3	20:30	6	0	0	0	0	6
8:45	7	0	0	0	0	7	20:45	4	0	0	0	0	4
9:00	2	0	0	0	0	2	21:00	8	0	0	0	0	8
9:15	4	0	0	0	0	4	21:15	5	0	0	0	0	5
9:30	4	0	0	0	0	4	21:30	5	0	0	0	0	5
9:45	3	1	0	0	0	4	21:45	5	0	0	0	0	5
10:00	7	0	0	0	0	7	22:00	4	0	0	0	0	4
10:15	2	0	0	0	0	2	22:15	12	0	0	0	0	12
10:30	2	0	0	0	0	2	22:30	4	0	0	0	0	4
10:45	3	0	0	0	0	3	22:45	5	0	0	0	0	5
11:00	1	0	0	0	0	1	23:00	4	0	0	0	0	4
11:15	7	0	0	0	0	7	23:15	1	0	0	0	0	1
11:30	4	1	0	0	0	5	23:30	1	0	0	0	0	1
11:45	3	0	0	0	0	3	23:45	0	0	0	0	0	0
TOTAL	101	2	1	0	0	104	TOTAL	312	3	1	0	0	316

AM PEAK HOUR	8:00 AM
AM PEAK VOLUME	22

AM PEAK HOUR	3:30 PM
AM PEAK VOLUME	45

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

TOTAL: AM+PM	413	5	2	0	0	420
% OF TOTAL	98.3%	1.2%	0.5%	0.0%	0.0%	100.0%
AM PEAK	22	0	0	0	0	22
PM PEAK	32	0	0	0	0	32

A13123

Study Site 9 - Summit Ridge Apartments

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS92 DWY west of Hathaway.

AM TIME	OUT 1	2	3	4	5	TOTAL	PM Time	OUT 1	2	3	4	5	TOTAL
0:00	0	0	0	0	0	0	12:00	3	0	1	0	0	4
0:15	0	0	0	0	0	0	12:15	9	0	0	0	0	9
0:30	1	0	0	0	0	1	12:30	9	0	0	0	0	9
0:45	0	0	0	0	0	0	12:45	3	0	0	0	0	3
1:00	0	0	0	0	0	0	13:00	6	0	0	0	0	6
1:15	0	0	0	0	0	0	13:15	3	1	0	0	0	4
1:30	0	0	0	0	0	0	13:30	9	0	0	0	0	9
1:45	0	0	0	0	0	0	13:45	3	0	0	0	0	3
2:00	0	0	0	0	0	0	14:00	8	1	0	0	0	9
2:15	1	0	0	0	0	1	14:15	7	0	0	0	0	7
2:30	1	0	0	0	0	1	14:30	9	0	0	0	0	9
2:45	0	0	0	0	0	0	14:45	1	0	0	0	0	1
3:00	0	0	0	0	0	0	15:00	6	0	0	0	0	6
3:15	1	0	0	0	0	1	15:15	8	0	0	0	0	8
3:30	3	0	0	0	0	3	15:30	10	0	0	0	0	10
3:45	0	0	0	0	0	0	15:45	9	1	0	0	0	10
4:00	2	0	0	0	0	2	16:00	8	0	0	0	0	8
4:15	0	0	0	0	0	0	16:15	4	0	0	0	0	4
4:30	1	0	0	0	0	1	16:30	6	0	0	0	0	6
4:45	0	0	0	0	0	0	16:45	2	0	0	0	0	2
5:00	2	0	0	0	0	2	17:00	4	1	0	0	0	5
5:15	1	0	0	0	0	1	17:15	8	0	0	0	0	8
5:30	2	0	0	0	0	2	17:30	9	0	0	0	0	9
5:45	10	0	0	0	0	10	17:45	6	0	0	0	0	6
6:00	2	0	0	0	0	2	18:00	3	0	0	0	0	3
6:15	7	0	0	0	0	7	18:15	5	0	0	0	0	5
6:30	0	0	0	0	0	0	18:30	4	0	0	0	0	4
6:45	4	0	1	0	0	5	18:45	3	0	0	0	0	3
7:00	3	0	0	0	0	3	19:00	5	0	0	0	0	5
7:15	4	0	0	0	0	4	19:15	4	1	0	0	0	5
7:30	3	0	0	0	0	3	19:30	4	0	0	0	0	4
7:45	8	0	0	0	0	8	19:45	2	0	0	0	0	2
8:00	9	0	0	0	0	9	20:00	5	0	0	0	0	5
8:15	9	0	0	0	0	9	20:15	3	0	0	0	0	3
8:30	3	0	0	0	0	3	20:30	2	0	0	0	0	2
8:45	8	0	0	0	0	8	20:45	2	0	0	0	0	2
9:00	8	0	0	0	0	8	21:00	4	0	0	0	0	4
9:15	4	0	0	0	0	4	21:15	1	0	0	0	0	1
9:30	7	0	0	0	0	7	21:30	5	0	0	0	0	5
9:45	1	0	0	0	0	1	21:45	5	0	0	0	0	5
10:00	4	0	0	0	0	4	22:00	3	0	0	0	0	3
10:15	3	0	0	0	0	3	22:15	1	0	0	0	0	1
10:30	2	0	0	0	0	2	22:30	1	0	0	0	0	1
10:45	2	0	0	0	0	2	22:45	4	0	0	0	0	4
11:00	5	0	0	0	0	5	23:00	0	0	0	0	0	0
11:15	4	0	0	0	0	4	23:15	1	0	0	0	0	1
11:30	3	0	0	0	0	3	23:30	0	0	0	0	0	0
11:45	6	0	0	0	0	6	23:45	2	0	0	0	0	2
TOTAL	134	0	1	0	0	135	TOTAL	219	5	1	0	0	225

AM PEAK HOUR	8:00 AM
AM PEAK VOLUME	29

AM PEAK HOUR	3:15 PM
AM PEAK VOLUME	36

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

	1	2	3	4	5	TOTAL
TOTAL: AM+PM	353	5	2	0	0	360
% OF TOTAL	98.1%	1.4%	0.6%	0.0%	0.0%	100.0%
AM PEAK	29	0	0	0	0	29
PM PEAK	27	1	0	0	0	28

A021323

Study Site 9 - Summit Ridge Apartments

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS93 DWY north of George.

AM TIME	IN 1	2	3	4	5	TOTAL	PM Time	IN 1	2	3	4	5	TOTAL
0:00	2	0	0	0	0	2	12:00	12	0	1	0	0	13
0:15	2	0	0	0	0	2	12:15	10	1	0	0	0	11
0:30	0	0	0	0	0	0	12:30	9	0	0	0	0	9
0:45	0	0	0	0	0	0	12:45	12	0	0	0	0	12
1:00	1	0	0	0	0	1	13:00	21	0	0	0	0	21
1:15	1	0	0	0	0	1	13:15	10	1	0	0	0	11
1:30	0	0	0	0	0	0	13:30	8	0	0	0	0	8
1:45	0	0	0	0	0	0	13:45	13	0	0	0	0	13
2:00	3	0	0	0	0	3	14:00	13	0	0	0	0	13
2:15	1	1	0	0	0	2	14:15	8	0	0	0	0	8
2:30	1	0	0	0	0	1	14:30	18	0	0	0	0	18
2:45	0	0	0	0	0	0	14:45	9	0	0	0	0	9
3:00	2	0	0	0	0	2	15:00	9	0	0	0	0	9
3:15	1	0	0	0	0	1	15:15	24	0	0	0	0	24
3:30	0	0	0	0	0	0	15:30	19	1	0	0	0	20
3:45	0	0	0	0	0	0	15:45	19	0	0	0	0	19
4:00	1	0	0	0	0	1	16:00	13	0	0	0	0	13
4:15	0	0	0	0	0	0	16:15	8	0	0	0	0	8
4:30	0	0	0	0	0	0	16:30	22	0	0	0	0	22
4:45	0	0	0	0	0	0	16:45	13	0	0	0	0	13
5:00	3	0	0	0	0	3	17:00	15	1	0	0	0	16
5:15	4	0	0	0	0	4	17:15	12	0	0	0	0	12
5:30	0	0	0	0	0	0	17:30	15	0	0	0	0	15
5:45	1	0	0	0	0	1	17:45	18	0	0	0	0	18
6:00	3	0	0	0	0	3	18:00	23	0	0	0	0	23
6:15	3	0	0	0	0	3	18:15	12	0	0	0	0	12
6:30	2	0	0	0	0	2	18:30	10	0	0	0	0	10
6:45	2	0	0	0	0	2	18:45	12	0	0	0	0	12
7:00	1	0	0	0	0	1	19:00	16	0	0	0	0	16
7:15	6	0	0	0	0	6	19:15	13	0	0	0	0	13
7:30	15	0	0	0	0	15	19:30	7	0	0	0	0	7
7:45	7	0	0	0	0	7	19:45	7	0	0	0	0	7
8:00	11	0	0	0	0	11	20:00	14	0	0	0	0	14
8:15	13	0	0	0	0	13	20:15	7	0	0	0	0	7
8:30	16	0	0	0	0	16	20:30	8	0	0	0	0	8
8:45	15	0	0	0	0	15	20:45	10	0	0	0	0	10
9:00	10	0	0	0	0	10	21:00	10	0	0	0	0	10
9:15	8	0	0	0	0	8	21:15	6	0	0	0	0	6
9:30	12	0	0	0	0	12	21:30	2	0	0	0	0	2
9:45	5	0	0	0	0	5	21:45	6	0	0	0	0	6
10:00	4	0	0	0	0	4	22:00	7	0	0	0	0	7
10:15	5	0	0	0	0	5	22:15	5	0	0	0	0	5
10:30	2	0	0	0	0	2	22:30	2	0	0	0	0	2
10:45	17	0	0	0	0	17	22:45	5	0	0	0	0	5
11:00	5	0	0	0	0	5	23:00	9	0	0	0	0	9
11:15	11	1	0	0	0	12	23:15	1	0	0	0	0	1
11:30	12	0	0	0	0	12	23:30	1	0	0	0	0	1
11:45	5	0	0	0	0	5	23:45	4	0	0	0	0	4
TOTAL	213	2	0	0	0	215	TOTAL	527	4	1	0	0	532

AM PEAK HOUR	8:00 AM
AM PEAK VOLUME	55

AM PEAK HOUR	3:15 PM
AM PEAK VOLUME	76

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

TOTAL: AM+PM	740	6	1	0	0	747
% OF TOTAL	99.1%	0.8%	0.1%	0.0%	0.0%	100.0%
AM PEAK	55	0	0	0	0	55
PM PEAK	62	1	0	0	0	63

A13123

Study Site 9 - Summit Ridge Apartments

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS93 DWY north of George.

AM TIME	OUT 1	2	3	4	5	TOTAL	PM Time	OUT 1	2	3	4	5	TOTAL
0:00	1	0	0	0	0	1	12:00	9	0	0	0	0	9
0:15	1	0	0	0	0	1	12:15	12	0	0	0	0	12
0:30	0	0	0	0	0	0	12:30	12	1	1	0	0	14
0:45	3	0	0	0	0	3	12:45	20	0	0	0	0	20
1:00	0	0	0	0	0	0	13:00	16	0	0	0	0	16
1:15	0	0	0	0	0	0	13:15	14	0	0	0	0	14
1:30	0	0	0	0	0	0	13:30	17	0	0	0	0	17
1:45	0	0	0	0	0	0	13:45	9	1	0	0	0	10
2:00	1	0	0	0	0	1	14:00	18	0	0	0	0	18
2:15	1	0	0	0	0	1	14:15	11	0	0	0	0	11
2:30	1	1	0	0	0	2	14:30	10	0	0	0	0	10
2:45	1	0	0	0	0	1	14:45	14	0	0	0	0	14
3:00	0	0	0	0	0	0	15:00	19	0	0	0	0	19
3:15	0	0	0	0	0	0	15:15	15	0	0	0	0	15
3:30	0	0	0	0	0	0	15:30	11	0	0	0	0	11
3:45	0	0	0	0	0	0	15:45	9	0	0	0	0	9
4:00	0	0	0	0	0	0	16:00	17	0	0	0	0	17
4:15	1	0	0	0	0	1	16:15	9	0	0	0	0	9
4:30	3	0	0	0	0	3	16:30	8	0	0	0	0	8
4:45	1	0	0	0	0	1	16:45	13	0	0	0	0	13
5:00	5	0	0	0	0	5	17:00	5	0	0	0	0	5
5:15	1	0	0	0	0	1	17:15	20	0	0	0	0	20
5:30	6	0	0	0	0	6	17:30	13	0	0	0	0	13
5:45	2	0	0	0	0	2	17:45	13	0	0	0	0	13
6:00	4	0	0	0	0	4	18:00	12	0	0	0	0	12
6:15	6	0	0	0	0	6	18:15	10	0	0	0	0	10
6:30	6	0	0	0	0	6	18:30	11	0	0	0	0	11
6:45	7	0	0	0	0	7	18:45	12	0	0	0	0	12
7:00	9	0	0	0	0	9	19:00	10	0	0	0	0	10
7:15	18	0	0	0	0	18	19:15	5	0	0	0	0	5
7:30	20	0	0	0	0	20	19:30	8	0	0	0	0	8
7:45	31	0	0	0	0	31	19:45	11	0	0	0	0	11
8:00	25	0	0	0	0	25	20:00	7	0	0	0	0	7
8:15	16	0	0	0	0	16	20:15	10	0	0	0	0	10
8:30	15	0	0	0	0	15	20:30	9	0	0	0	0	9
8:45	14	0	0	0	0	14	20:45	7	0	0	0	0	7
9:00	10	0	0	0	0	10	21:00	5	0	0	0	0	5
9:15	15	0	0	0	0	15	21:15	4	0	0	0	0	4
9:30	11	0	0	0	0	11	21:30	6	0	0	0	0	6
9:45	9	0	0	0	0	9	21:45	2	0	0	0	0	2
10:00	9	1	0	0	0	10	22:00	5	0	0	0	0	5
10:15	10	0	0	0	0	10	22:15	4	0	0	0	0	4
10:30	7	0	0	0	0	7	22:30	4	0	0	0	0	4
10:45	12	0	0	0	0	12	22:45	3	0	0	0	0	3
11:00	11	0	0	0	0	11	23:00	6	0	0	0	0	6
11:15	8	1	0	0	0	9	23:15	0	0	0	0	0	0
11:30	9	0	0	0	0	9	23:30	0	0	0	0	0	0
11:45	19	1	0	0	0	20	23:45	3	0	0	0	0	3
TOTAL	329	4	0	0	0	333	TOTAL	468	2	1	0	0	471

AM PEAK HOUR	7:15 AM
AM PEAK VOLUME	94

AM PEAK HOUR	12:45 PM
AM PEAK VOLUME	67

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

TOTAL: AM+PM	797	6	1	0	0	804
% OF TOTAL	99.1%	0.7%	0.1%	0.0%	0.0%	100.0%
AM PEAK	94	0	0	0	0	94
PM PEAK	51	0	0	0	0	51

A021323

Study Site 10 - Riverdale Apartments

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS87 Dwy north of Thornton.

AM TIME	IN 1	2	3	4	5	TOTAL	PM Time	IN 1	2	3	4	5	TOTAL
0:00	0	0	0	0	0	0	12:00	3	0	0	0	0	3
0:15	0	0	0	0	0	0	12:15	2	1	0	0	0	3
0:30	3	0	0	0	0	3	12:30	3	1	0	0	0	4
0:45	2	0	0	0	0	2	12:45	2	0	0	0	0	2
1:00	1	0	0	0	0	1	13:00	3	0	0	0	0	3
1:15	0	0	0	0	0	0	13:15	4	0	0	0	0	4
1:30	0	0	0	0	0	0	13:30	3	0	0	0	0	3
1:45	0	0	0	0	0	0	13:45	3	0	0	0	0	3
2:00	0	0	0	0	0	0	14:00	5	0	0	0	0	5
2:15	0	0	0	0	0	0	14:15	8	0	0	0	0	8
2:30	0	0	0	0	0	0	14:30	6	0	0	0	0	6
2:45	2	0	0	0	0	2	14:45	2	0	0	0	0	2
3:00	1	0	0	0	0	1	15:00	5	0	0	0	0	5
3:15	0	0	0	0	0	0	15:15	5	0	0	0	0	5
3:30	0	0	0	0	0	0	15:30	9	0	0	0	0	9
3:45	0	0	0	0	0	0	15:45	3	0	0	0	0	3
4:00	0	0	0	0	0	0	16:00	9	0	0	0	0	9
4:15	0	0	0	0	0	0	16:15	9	0	0	0	0	9
4:30	0	0	0	0	0	0	16:30	5	0	0	0	0	5
4:45	2	0	0	0	0	2	16:45	7	0	0	0	0	7
5:00	0	0	0	0	0	0	17:00	6	0	0	0	0	6
5:15	0	0	0	0	0	0	17:15	2	0	0	0	0	2
5:30	1	0	0	0	0	1	17:30	9	0	0	0	0	9
5:45	0	0	0	0	0	0	17:45	9	0	0	0	0	9
6:00	0	0	0	0	0	0	18:00	12	0	0	0	0	12
6:15	0	0	0	0	0	0	18:15	5	0	0	0	0	5
6:30	1	0	0	0	0	1	18:30	9	0	0	0	0	9
6:45	3	0	0	0	0	3	18:45	5	0	0	0	0	5
7:00	1	0	0	0	0	1	19:00	5	0	0	0	0	5
7:15	10	0	0	0	0	10	19:15	3	0	0	0	0	3
7:30	2	0	0	0	0	2	19:30	8	0	0	0	0	8
7:45	1	0	0	0	0	1	19:45	3	0	0	0	0	3
8:00	3	0	0	0	0	3	20:00	7	0	0	0	0	7
8:15	4	0	0	0	0	4	20:15	5	0	0	0	0	5
8:30	5	0	0	0	0	5	20:30	8	0	0	0	0	8
8:45	2	1	0	0	0	3	20:45	2	0	0	0	0	2
9:00	10	0	0	0	0	10	21:00	1	0	0	0	0	1
9:15	1	0	0	0	0	1	21:15	3	0	0	0	0	3
9:30	3	0	0	0	0	3	21:30	2	0	0	0	0	2
9:45	7	0	0	0	0	7	21:45	2	0	0	0	0	2
10:00	2	0	0	0	0	2	22:00	7	0	0	0	0	7
10:15	0	0	0	0	0	0	22:15	3	0	0	0	0	3
10:30	1	0	0	0	0	1	22:30	1	0	0	0	0	1
10:45	4	1	0	0	0	5	22:45	3	0	0	0	0	3
11:00	5	0	0	0	0	5	23:00	1	0	0	0	0	1
11:15	3	0	0	0	0	3	23:15	5	0	0	0	0	5
11:30	4	1	0	0	0	5	23:30	1	0	0	0	0	1
11:45	5	0	0	0	0	5	23:45	1	0	0	0	0	1
TOTAL	89	3	0	0	0	92	TOTAL	224	2	0	0	0	226

AM PEAK HOUR	8:15 AM
AM PEAK VOLUME	22

AM PEAK HOUR	5:45 PM
AM PEAK VOLUME	35

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

TOTAL: AM+PM	313	5	0	0	0	318
% OF TOTAL	98.4%	1.6%	0.0%	0.0%	0.0%	100.0%
AM PEAK	16	0	0	0	0	16
PM PEAK	30	0	0	0	0	30

A13123

Study Site 10 - Riverdale Apartments

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS87 Dwy north of Thornton.

AM TIME	OUT 1	2	3	4	5	TOTAL	PM Time	OUT 1	2	3	4	5	TOTAL
0:00	0	0	0	0	0	0	12:00	3	0	0	0	0	3
0:15	0	0	0	0	0	0	12:15	6	0	0	0	0	6
0:30	2	0	0	0	0	2	12:30	0	1	0	0	0	1
0:45	1	0	0	0	0	1	12:45	5	0	0	0	0	5
1:00	1	0	0	0	0	1	13:00	3	0	0	0	0	3
1:15	0	0	0	0	0	0	13:15	5	0	0	0	0	5
1:30	1	0	0	0	0	1	13:30	1	0	0	0	0	1
1:45	1	0	0	0	0	1	13:45	5	0	0	0	0	5
2:00	0	0	0	0	0	0	14:00	5	0	0	0	0	5
2:15	0	0	0	0	0	0	14:15	6	0	0	0	0	6
2:30	0	0	0	0	0	0	14:30	7	0	0	0	0	7
2:45	1	0	0	0	0	1	14:45	4	0	0	0	0	4
3:00	0	0	0	0	0	0	15:00	6	0	0	0	0	6
3:15	0	0	0	0	0	0	15:15	2	0	0	0	0	2
3:30	1	0	0	0	0	1	15:30	11	0	0	0	0	11
3:45	0	0	0	0	0	0	15:45	3	0	0	0	0	3
4:00	1	0	0	0	0	1	16:00	5	0	0	0	0	5
4:15	1	0	0	0	0	1	16:15	12	0	0	0	0	12
4:30	0	0	0	0	0	0	16:30	5	0	0	0	0	5
4:45	0	0	0	0	0	0	16:45	7	0	0	0	0	7
5:00	1	0	0	0	0	1	17:00	5	0	0	0	0	5
5:15	0	0	0	0	0	0	17:15	6	0	0	0	0	6
5:30	1	0	0	0	0	1	17:30	1	0	0	0	0	1
5:45	1	0	0	0	0	1	17:45	4	0	0	0	0	4
6:00	1	0	0	0	0	1	18:00	7	0	0	0	0	7
6:15	3	0	0	0	0	3	18:15	7	0	0	0	0	7
6:30	6	0	0	0	0	6	18:30	7	0	0	0	0	7
6:45	3	0	0	0	0	3	18:45	4	0	0	0	0	4
7:00	13	0	0	0	0	13	19:00	5	0	0	0	0	5
7:15	14	0	0	0	0	14	19:15	2	0	0	0	0	2
7:30	3	0	0	0	0	3	19:30	4	0	0	0	0	4
7:45	7	0	0	0	0	7	19:45	4	0	0	0	0	4
8:00	6	0	0	0	0	6	20:00	5	0	0	0	0	5
8:15	3	0	0	0	0	3	20:15	4	0	0	0	0	4
8:30	11	0	0	0	0	11	20:30	4	0	0	0	0	4
8:45	5	1	0	0	0	6	20:45	1	0	0	0	0	1
9:00	6	0	0	0	0	6	21:00	2	0	0	0	0	2
9:15	1	0	0	0	0	1	21:15	0	0	0	0	0	0
9:30	4	0	0	0	0	4	21:30	2	0	0	0	0	2
9:45	6	0	0	0	0	6	21:45	0	0	0	0	0	0
10:00	4	0	0	0	0	4	22:00	5	0	0	0	0	5
10:15	0	0	0	0	0	0	22:15	3	0	0	0	0	3
10:30	2	0	0	0	0	2	22:30	1	0	0	0	0	1
10:45	1	0	0	0	0	1	22:45	3	0	0	0	0	3
11:00	3	0	0	0	0	3	23:00	1	0	0	0	0	1
11:15	4	0	0	0	0	4	23:15	5	0	0	0	0	5
11:30	5	0	0	0	0	5	23:30	1	0	0	0	0	1
11:45	4	1	0	0	0	5	23:45	0	0	0	0	0	0
TOTAL	128	2	0	0	0	130	TOTAL	194	1	0	0	0	195

AM PEAK HOUR	7:00 AM
AM PEAK VOLUME	37

AM PEAK HOUR	3:30 PM
AM PEAK VOLUME	31

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

	1	2	3	4	5	TOTAL
TOTAL: AM+PM	322	3	0	0	0	325
% OF TOTAL	99.1%	0.9%	0.0%	0.0%	0.0%	100.0%
AM PEAK	37	0	0	0	0	37
PM PEAK	29	0	0	0	0	29

A021323

Study Site 10 - Riverdale Apartments

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS88 Southern Dwy east of Cawston.

AM TIME	IN 1	2	3	4	5	TOTAL	PM Time	IN 1	2	3	4	5	TOTAL
0:00	1	0	0	0	0	1	12:00	6	0	0	0	0	6
0:15	2	0	0	0	0	2	12:15	12	0	0	0	0	12
0:30	3	0	0	0	0	3	12:30	9	0	0	0	0	9
0:45	1	0	0	0	0	1	12:45	3	0	0	0	0	3
1:00	1	0	0	0	0	1	13:00	4	0	0	0	0	4
1:15	2	0	0	0	0	2	13:15	13	0	0	0	0	13
1:30	0	0	0	0	0	0	13:30	11	0	0	0	0	11
1:45	3	0	0	0	0	3	13:45	3	0	0	0	0	3
2:00	0	0	0	0	0	0	14:00	4	0	0	0	0	4
2:15	1	0	0	0	0	1	14:15	11	0	0	0	0	11
2:30	0	0	0	0	0	0	14:30	8	0	0	0	0	8
2:45	1	0	0	0	0	1	14:45	11	0	0	0	0	11
3:00	0	0	0	0	0	0	15:00	14	0	0	0	0	14
3:15	1	0	0	0	0	1	15:15	6	0	0	0	0	6
3:30	0	0	0	0	0	0	15:30	9	0	0	0	0	9
3:45	0	0	0	0	0	0	15:45	12	0	0	0	0	12
4:00	0	0	0	0	0	0	16:00	7	0	0	0	0	7
4:15	0	0	0	0	0	0	16:15	13	0	0	0	0	13
4:30	1	0	0	0	0	1	16:30	6	0	0	0	0	6
4:45	0	0	0	0	0	0	16:45	16	0	0	0	0	16
5:00	5	0	0	0	0	5	17:00	16	0	0	0	0	16
5:15	2	0	0	0	0	2	17:15	7	0	0	0	0	7
5:30	3	0	0	0	0	3	17:30	13	0	0	0	0	13
5:45	2	0	0	0	0	2	17:45	10	0	0	0	0	10
6:00	1	0	0	0	0	1	18:00	6	0	0	0	0	6
6:15	0	0	0	0	0	0	18:15	10	0	0	0	0	10
6:30	3	0	0	0	0	3	18:30	10	0	0	0	0	10
6:45	4	0	0	0	0	4	18:45	10	0	0	0	0	10
7:00	12	0	0	0	0	12	19:00	10	0	0	0	0	10
7:15	11	0	0	0	0	11	19:15	7	0	0	0	0	7
7:30	10	0	0	0	0	10	19:30	8	0	0	0	0	8
7:45	5	0	0	0	0	5	19:45	4	0	0	0	0	4
8:00	6	0	0	0	0	6	20:00	4	0	0	0	0	4
8:15	2	0	0	0	0	2	20:15	3	0	0	0	0	3
8:30	9	0	0	0	0	9	20:30	4	0	0	0	0	4
8:45	9	0	0	0	0	9	20:45	2	0	0	0	0	2
9:00	3	0	0	0	0	3	21:00	4	0	0	0	0	4
9:15	3	0	0	0	0	3	21:15	6	0	0	0	0	6
9:30	4	0	0	0	0	4	21:30	6	0	0	0	0	6
9:45	2	0	0	0	0	2	21:45	2	0	0	0	0	2
10:00	3	0	0	0	0	3	22:00	4	0	0	0	0	4
10:15	2	0	0	0	0	2	22:15	5	0	0	0	0	5
10:30	5	1	0	0	0	6	22:30	5	0	0	0	0	5
10:45	4	0	0	0	0	4	22:45	3	0	0	0	0	3
11:00	6	0	0	0	0	6	23:00	0	0	0	0	0	0
11:15	5	0	0	0	0	5	23:15	1	0	0	0	0	1
11:30	6	0	0	0	0	6	23:30	1	0	0	0	0	1
11:45	1	1	0	0	0	2	23:45	1	0	0	0	0	1
TOTAL	145	2	0	0	0	147	TOTAL	340	0	0	0	0	340

AM PEAK HOUR	7:00 AM
AM PEAK VOLUME	38

AM PEAK HOUR	4:45 PM
AM PEAK VOLUME	52

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

	1	2	3	4	5	TOTAL
TOTAL: AM+PM	485	2	0	0	0	487
% OF TOTAL	99.6%	0.4%	0.0%	0.0%	0.0%	100.0%
AM PEAK	38	0	0	0	0	38
PM PEAK	52	0	0	0	0	52

A13123

Study Site 10 - Riverdale Apartments

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS88 Southern Dwy east of Cawston.

AM TIME	OUT 1	2	3	4	5	TOTAL	PM Time	OUT 1	2	3	4	5	TOTAL
0:00	1	0	0	0	0	1	12:00	4	0	0	0	0	4
0:15	1	0	0	0	0	1	12:15	8	0	0	0	0	8
0:30	2	0	0	0	0	2	12:30	7	2	0	0	0	9
0:45	2	0	0	0	0	2	12:45	7	0	0	0	0	7
1:00	0	0	0	0	0	0	13:00	8	0	0	0	0	8
1:15	1	0	0	0	0	1	13:15	9	0	0	0	0	9
1:30	0	0	0	0	0	0	13:30	13	0	0	0	0	13
1:45	0	0	0	0	0	0	13:45	7	0	0	0	0	7
2:00	0	0	0	0	0	0	14:00	14	0	0	0	0	14
2:15	0	0	0	0	0	0	14:15	13	0	0	0	0	13
2:30	0	0	0	0	0	0	14:30	4	0	0	0	0	4
2:45	0	0	0	0	0	0	14:45	6	0	0	0	0	6
3:00	0	0	0	0	0	0	15:00	6	0	0	0	0	6
3:15	0	0	0	0	0	0	15:15	8	0	0	0	0	8
3:30	0	0	0	0	0	0	15:30	9	0	0	0	0	9
3:45	3	0	0	0	0	3	15:45	11	0	0	0	0	11
4:00	1	0	0	0	0	1	16:00	8	0	0	0	0	8
4:15	1	0	0	0	0	1	16:15	6	0	0	0	0	6
4:30	0	0	0	0	0	0	16:30	4	0	0	0	0	4
4:45	0	0	0	0	0	0	16:45	7	0	0	0	0	7
5:00	2	0	0	0	0	2	17:00	12	0	0	0	0	12
5:15	1	0	0	0	0	1	17:15	6	0	0	0	0	6
5:30	2	0	0	0	0	2	17:30	11	0	0	0	0	11
5:45	1	0	0	0	0	1	17:45	6	0	0	0	0	6
6:00	6	0	0	0	0	6	18:00	3	0	0	0	0	3
6:15	3	0	0	0	0	3	18:15	3	0	0	0	0	3
6:30	3	0	0	0	0	3	18:30	8	0	0	0	0	8
6:45	14	0	0	0	0	14	18:45	8	0	0	0	0	8
7:00	20	0	0	0	0	20	19:00	4	0	0	0	0	4
7:15	18	0	0	0	0	18	19:15	4	0	0	0	0	4
7:30	26	0	0	0	0	26	19:30	4	0	0	0	0	4
7:45	11	0	0	0	0	11	19:45	3	0	0	0	0	3
8:00	6	0	0	0	0	6	20:00	5	0	0	0	0	5
8:15	5	0	0	0	0	5	20:15	5	0	0	0	0	5
8:30	8	0	0	0	0	8	20:30	5	0	0	0	0	5
8:45	8	0	0	0	0	8	20:45	3	0	0	0	0	3
9:00	5	0	0	0	0	5	21:00	5	0	0	0	0	5
9:15	2	0	0	0	0	2	21:15	5	0	0	0	0	5
9:30	5	0	0	0	0	5	21:30	4	0	0	0	0	4
9:45	6	0	0	0	0	6	21:45	2	0	0	0	0	2
10:00	5	0	0	0	0	5	22:00	1	0	0	0	0	1
10:15	0	0	0	0	0	0	22:15	2	0	0	0	0	2
10:30	3	0	0	0	0	3	22:30	4	0	0	0	0	4
10:45	7	1	0	0	0	8	22:45	1	0	0	0	0	1
11:00	8	1	0	0	0	9	23:00	0	0	0	0	0	0
11:15	5	0	0	0	0	5	23:15	7	0	0	0	0	7
11:30	4	0	0	0	0	4	23:30	1	0	0	0	0	1
11:45	5	1	0	0	0	6	23:45	1	0	0	0	0	1
TOTAL	201	3	0	0	0	204	TOTAL	282	2	0	0	0	284

AM PEAK HOUR	6:45 AM
AM PEAK VOLUME	78

AM PEAK HOUR	1:30 PM
AM PEAK VOLUME	47

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

	1	2	3	4	5	TOTAL
TOTAL: AM+PM	483	5	0	0	0	488
% OF TOTAL	99.0%	1.0%	0.0%	0.0%	0.0%	100.0%
AM PEAK	75	0	0	0	0	75
PM PEAK	36	0	0	0	0	36

A021323

Study Site 10 - Riverdale Apartments

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS89 Northern Dwy east of Cawston.

AM TIME	IN 1	2	3	4	5	TOTAL	PM Time	IN 1	2	3	4	5	TOTAL
0:00	2	0	0	0	0	2	12:00	4	0	0	0	0	4
0:15	0	0	0	0	0	0	12:15	3	0	0	0	0	3
0:30	0	0	0	0	0	0	12:30	3	0	0	0	0	3
0:45	1	0	0	0	0	1	12:45	1	0	0	0	0	1
1:00	0	0	0	0	0	0	13:00	5	0	0	0	0	5
1:15	0	0	0	0	0	0	13:15	1	0	0	0	0	1
1:30	1	0	0	0	0	1	13:30	4	0	0	0	0	4
1:45	0	0	0	0	0	0	13:45	4	0	0	0	0	4
2:00	1	0	0	0	0	1	14:00	7	1	0	0	0	8
2:15	0	0	0	0	0	0	14:15	5	0	0	0	0	5
2:30	0	0	0	0	0	0	14:30	4	0	0	0	0	4
2:45	0	0	0	0	0	0	14:45	4	0	0	0	0	4
3:00	0	0	0	0	0	0	15:00	4	0	0	0	0	4
3:15	0	0	0	0	0	0	15:15	5	0	1	0	0	6
3:30	0	0	0	0	0	0	15:30	3	0	0	0	0	3
3:45	0	0	0	0	0	0	15:45	2	0	0	0	0	2
4:00	2	0	0	0	0	2	16:00	7	0	0	0	0	7
4:15	5	0	0	0	0	5	16:15	6	0	0	0	0	6
4:30	0	0	0	0	0	0	16:30	8	0	0	0	0	8
4:45	0	0	0	0	0	0	16:45	10	0	0	0	0	10
5:00	0	0	0	0	0	0	17:00	8	0	0	0	0	8
5:15	0	0	0	0	0	0	17:15	4	0	0	0	0	4
5:30	0	0	0	0	0	0	17:30	3	0	0	0	0	3
5:45	1	0	0	0	0	1	17:45	4	0	0	0	0	4
6:00	1	0	0	0	0	1	18:00	5	0	0	0	0	5
6:15	2	0	0	0	0	2	18:15	6	0	0	0	0	6
6:30	1	0	0	0	0	1	18:30	8	0	0	0	0	8
6:45	0	0	0	0	0	0	18:45	4	0	0	0	0	4
7:00	2	0	0	0	0	2	19:00	5	0	0	0	0	5
7:15	1	0	0	0	0	1	19:15	4	0	0	0	0	4
7:30	5	0	0	0	0	5	19:30	4	0	0	0	0	4
7:45	2	0	0	0	0	2	19:45	5	0	0	0	0	5
8:00	0	0	0	0	0	0	20:00	3	0	0	0	0	3
8:15	1	0	0	0	0	1	20:15	7	0	0	0	0	7
8:30	3	0	0	0	0	3	20:30	4	0	0	0	0	4
8:45	5	0	0	0	0	5	20:45	12	0	0	0	0	12
9:00	5	1	0	0	0	6	21:00	4	0	0	0	0	4
9:15	3	0	0	0	0	3	21:15	5	0	0	0	0	5
9:30	1	0	0	0	0	1	21:30	4	0	0	0	0	4
9:45	5	0	0	0	0	5	21:45	6	0	0	0	0	6
10:00	3	0	0	0	0	3	22:00	2	0	0	0	0	2
10:15	2	0	0	0	0	2	22:15	4	0	0	0	0	4
10:30	2	0	0	0	0	2	22:30	3	0	0	0	0	3
10:45	4	0	0	0	0	4	22:45	3	0	0	0	0	3
11:00	5	0	0	0	0	5	23:00	6	0	0	0	0	6
11:15	1	0	0	0	0	1	23:15	7	0	0	0	0	7
11:30	3	0	0	0	0	3	23:30	6	0	0	0	0	6
11:45	3	1	0	0	0	4	23:45	5	0	0	0	0	5
TOTAL	73	2	0	0	0	75	TOTAL	231	1	1	0	0	233

AM PEAK HOUR	8:30 AM
AM PEAK VOLUME	17

AM PEAK HOUR	4:15 PM
AM PEAK VOLUME	32

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

TOTAL: AM+PM	304	3	1	0	0	308
% OF TOTAL	98.7%	1.0%	0.3%	0.0%	0.0%	100.0%
AM PEAK	10	0	0	0	0	10
PM PEAK	32	0	0	0	0	32

A13123

Study Site 10 - Riverdale Apartments

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS89 Northern Dwy east of Cawston.

AM	OUT						PM	OUT					
TIME	1	2	3	4	5	TOTAL	Time	1	2	3	4	5	TOTAL
0:00	0	0	0	0	0	0	12:00	6	0	0	0	0	6
0:15	0	0	0	0	0	0	12:15	9	0	0	0	0	9
0:30	3	0	0	0	0	3	12:30	6	0	0	0	0	6
0:45	1	0	0	0	0	1	12:45	4	0	0	0	0	4
1:00	0	0	0	0	0	0	13:00	5	0	0	0	0	5
1:15	0	0	0	0	0	0	13:15	4	0	0	0	0	4
1:30	0	0	0	0	0	0	13:30	5	0	0	0	0	5
1:45	0	0	0	0	0	0	13:45	4	0	0	0	0	4
2:00	0	0	0	0	0	0	14:00	3	0	0	0	0	3
2:15	0	0	0	0	0	0	14:15	8	0	0	0	0	8
2:30	0	0	0	0	0	0	14:30	6	0	0	0	0	6
2:45	2	0	0	0	0	2	14:45	5	0	0	0	0	5
3:00	1	0	0	0	0	1	15:00	6	0	0	0	0	6
3:15	0	0	0	0	0	0	15:15	9	0	0	0	0	9
3:30	3	0	0	0	0	3	15:30	5	0	1	0	0	6
3:45	0	0	0	0	0	0	15:45	7	0	0	0	0	7
4:00	0	0	0	0	0	0	16:00	2	0	0	0	0	2
4:15	4	0	0	0	0	4	16:15	6	0	0	0	0	6
4:30	0	0	0	0	0	0	16:30	6	0	0	0	0	6
4:45	1	0	0	0	0	1	16:45	5	0	0	0	0	5
5:00	0	0	0	0	0	0	17:00	6	0	0	0	0	6
5:15	0	0	0	0	0	0	17:15	3	0	0	0	0	3
5:30	2	0	0	0	0	2	17:30	4	0	0	0	0	4
5:45	2	0	0	0	0	2	17:45	3	0	0	0	0	3
6:00	5	0	0	0	0	5	18:00	6	0	0	0	0	6
6:15	3	0	0	0	0	3	18:15	5	0	0	0	0	5
6:30	2	0	0	0	0	2	18:30	3	0	0	0	0	3
6:45	5	0	0	0	0	5	18:45	3	0	0	0	0	3
7:00	7	0	0	0	0	7	19:00	6	0	0	0	0	6
7:15	7	0	0	0	0	7	19:15	2	0	0	0	0	2
7:30	5	0	0	0	0	5	19:30	2	0	0	0	0	2
7:45	2	0	0	0	0	2	19:45	3	0	0	0	0	3
8:00	4	0	0	0	0	4	20:00	3	0	0	0	0	3
8:15	3	0	0	0	0	3	20:15	1	0	0	0	0	1
8:30	6	0	0	0	0	6	20:30	1	0	0	0	0	1
8:45	4	0	0	0	0	4	20:45	2	0	0	0	0	2
9:00	2	0	0	0	0	2	21:00	1	0	0	0	0	1
9:15	2	0	0	0	0	2	21:15	5	0	0	0	0	5
9:30	3	0	0	0	0	3	21:30	2	0	0	0	0	2
9:45	8	0	0	0	0	8	21:45	2	0	0	0	0	2
10:00	1	0	0	0	0	1	22:00	1	0	0	0	0	1
10:15	3	0	0	0	0	3	22:15	1	0	0	0	0	1
10:30	2	0	0	0	0	2	22:30	3	0	0	0	0	3
10:45	3	0	0	0	0	3	22:45	2	0	0	0	0	2
11:00	2	0	0	0	0	2	23:00	1	0	0	0	0	1
11:15	2	0	0	0	0	2	23:15	0	0	0	0	0	0
11:30	3	0	0	0	0	3	23:30	1	0	0	0	0	1
11:45	1	1	0	0	0	2	23:45	0	0	0	0	0	0
TOTAL	104	1	0	0	0	105	TOTAL	183	0	1	0	0	184

AM PEAK HOUR	6:45 AM
AM PEAK VOLUME	24

AM PEAK HOUR	3:00 PM
AM PEAK VOLUME	28

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

TOTAL: AM+PM	287	1	1	0	0	289
% OF TOTAL	99.3%	0.3%	0.3%	0.0%	0.0%	100.0%
AM PEAK	21	0	0	0	0	21
PM PEAK	23	0	0	0	0	23

A021323

Study Site 11 - Parkridge Meadows Apartments

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS70 Dwy east of E Parkridge.

AM	IN						PM	IN					
TIME	1	2	3	4	5	TOTAL	Time	1	2	3	4	5	TOTAL
0:00	2	0	0	0	0	2	12:00	9	0	0	0	0	9
0:15	2	0	0	0	0	2	12:15	10	0	0	0	0	10
0:30	8	0	0	0	0	8	12:30	16	0	0	0	0	16
0:45	2	0	0	0	0	2	12:45	13	1	0	0	0	14
1:00	2	0	0	0	0	2	13:00	20	2	0	0	0	22
1:15	2	0	0	0	0	2	13:15	10	2	0	0	0	12
1:30	1	0	0	0	0	1	13:30	18	1	0	0	0	19
1:45	1	0	0	0	0	1	13:45	18	0	0	0	0	18
2:00	1	0	0	0	0	1	14:00	19	2	0	0	0	21
2:15	1	0	0	0	0	1	14:15	21	1	0	0	0	22
2:30	1	0	0	0	0	1	14:30	37	1	0	0	0	38
2:45	1	0	0	0	0	1	14:45	32	0	0	0	0	32
3:00	4	0	0	0	0	4	15:00	15	0	0	0	0	15
3:15	5	0	0	0	0	5	15:15	22	2	0	0	0	24
3:30	1	0	0	0	0	1	15:30	20	0	0	0	0	20
3:45	4	0	0	0	0	4	15:45	17	0	0	0	0	17
4:00	7	0	0	0	0	7	16:00	26	3	0	0	0	29
4:15	0	0	0	0	0	0	16:15	21	0	0	0	0	21
4:30	2	0	0	0	0	2	16:30	26	0	0	0	0	26
4:45	4	0	0	0	0	4	16:45	25	0	0	0	0	25
5:00	3	0	0	0	0	3	17:00	23	0	0	0	0	23
5:15	5	0	0	0	0	5	17:15	25	0	0	0	0	25
5:30	1	0	0	0	0	1	17:30	19	0	0	0	0	19
5:45	5	0	0	0	0	5	17:45	30	0	0	0	0	30
6:00	4	0	0	0	0	4	18:00	13	0	0	0	0	13
6:15	6	0	0	0	0	6	18:15	28	1	0	0	0	29
6:30	3	2	0	0	0	5	18:30	14	1	0	0	0	15
6:45	8	1	0	0	0	9	18:45	26	0	0	0	0	26
7:00	6	2	0	0	0	8	19:00	18	0	0	0	0	18
7:15	7	3	0	0	0	10	19:15	9	0	0	0	0	9
7:30	20	0	1	0	0	21	19:30	18	0	0	0	0	18
7:45	11	0	0	0	0	11	19:45	20	0	0	0	0	20
8:00	11	0	1	0	0	12	20:00	14	0	0	0	0	14
8:15	15	1	0	0	0	16	20:15	7	0	0	0	0	7
8:30	11	1	0	0	0	12	20:30	18	0	0	0	0	18
8:45	8	2	0	0	0	10	20:45	14	0	0	0	0	14
9:00	11	0	0	0	0	11	21:00	9	0	0	0	0	9
9:15	5	0	0	0	0	5	21:15	15	0	0	0	0	15
9:30	9	2	0	0	0	11	21:30	11	0	0	0	0	11
9:45	8	0	0	0	0	8	21:45	12	0	0	0	0	12
10:00	13	0	0	0	0	13	22:00	11	0	0	0	0	11
10:15	3	1	0	0	0	4	22:15	6	0	0	0	0	6
10:30	9	1	0	0	0	10	22:30	12	0	0	0	0	12
10:45	15	0	0	0	0	15	22:45	5	0	0	0	0	5
11:00	10	0	0	0	0	10	23:00	7	0	0	0	0	7
11:15	7	1	0	0	0	8	23:15	3	0	0	0	0	3
11:30	11	0	0	0	0	11	23:30	6	0	0	0	0	6
11:45	8	0	0	0	0	8	23:45	2	0	0	0	0	2
TOTAL	284	17	2	0	0	303	TOTAL	790	17	0	0	0	807

AM PEAK HOUR	7:30 AM
AM PEAK VOLUME	60

AM PEAK HOUR	2:00 PM
AM PEAK VOLUME	113

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

TOTAL: AM+PM	1,074	34	2	0	0	1,110
% OF TOTAL	96.8%	3.1%	0.2%	0.0%	0.0%	100.0%
AM PEAK	57	1	2	0	0	60
PM PEAK	98	3	0	0	0	101

A13123

Study Site 11 - Parkridge Meadows Apartments

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS70 Dwy east of E Parkridge.

AM	OUT						PM	OUT					
TIME	1	2	3	4	5	TOTAL	Time	1	2	3	4	5	TOTAL
0:00	2	0	0	0	0	2	12:00	8	0	0	0	0	8
0:15	3	0	0	0	0	3	12:15	12	1	0	0	0	13
0:30	4	0	0	0	0	4	12:30	12	0	0	0	0	12
0:45	3	0	0	0	0	3	12:45	10	0	0	0	0	10
1:00	2	0	0	0	0	2	13:00	16	2	0	0	0	18
1:15	1	0	0	0	0	1	13:15	15	2	0	0	0	17
1:30	1	0	0	0	0	1	13:30	14	0	0	0	0	14
1:45	0	0	0	0	0	0	13:45	18	0	0	0	0	18
2:00	0	0	0	0	0	0	14:00	16	3	0	0	0	19
2:15	0	0	0	0	0	0	14:15	20	2	0	0	0	22
2:30	1	0	0	0	0	1	14:30	17	0	0	0	0	17
2:45	0	0	0	0	0	0	14:45	14	0	0	0	0	14
3:00	1	0	0	0	0	1	15:00	16	1	0	0	0	17
3:15	0	0	0	0	0	0	15:15	29	2	0	0	0	31
3:30	1	0	0	0	0	1	15:30	24	0	0	0	0	24
3:45	2	0	0	0	0	2	15:45	21	0	0	0	0	21
4:00	10	0	0	0	0	10	16:00	15	3	0	0	0	18
4:15	14	0	0	0	0	14	16:15	17	0	0	0	0	17
4:30	16	0	0	0	0	16	16:30	12	0	0	0	0	12
4:45	11	0	0	0	0	11	16:45	9	0	0	0	0	9
5:00	6	0	0	0	0	6	17:00	18	0	0	0	0	18
5:15	19	0	0	0	0	19	17:15	15	0	0	0	0	15
5:30	13	0	0	0	0	13	17:30	15	0	0	0	0	15
5:45	16	0	0	0	0	16	17:45	12	0	0	0	0	12
6:00	10	0	0	0	0	10	18:00	11	0	0	0	0	11
6:15	11	0	0	0	0	11	18:15	12	0	0	0	0	12
6:30	18	0	0	0	0	18	18:30	15	3	0	0	0	18
6:45	28	3	0	0	0	31	18:45	12	0	0	0	0	12
7:00	12	1	0	0	0	13	19:00	14	1	0	0	0	15
7:15	35	4	0	0	0	39	19:15	11	0	0	0	0	11
7:30	26	0	0	0	0	26	19:30	13	0	0	0	0	13
7:45	26	0	1	0	0	27	19:45	7	0	0	0	0	7
8:00	23	0	0	0	0	23	20:00	16	0	0	0	0	16
8:15	10	0	1	0	0	11	20:15	10	0	0	0	0	10
8:30	14	1	0	0	0	15	20:30	19	0	0	0	0	19
8:45	20	3	0	0	0	23	20:45	7	0	0	0	0	7
9:00	15	0	0	0	0	15	21:00	7	0	0	0	0	7
9:15	16	0	0	0	0	16	21:15	4	0	0	0	0	4
9:30	9	1	0	0	0	10	21:30	6	0	0	0	0	6
9:45	16	1	0	0	0	17	21:45	6	0	0	0	0	6
10:00	10	0	0	0	0	10	22:00	1	0	0	0	0	1
10:15	17	0	0	0	0	17	22:15	4	0	0	0	0	4
10:30	8	1	0	0	0	9	22:30	7	0	0	0	0	7
10:45	17	0	0	0	0	17	22:45	3	0	0	0	0	3
11:00	10	0	0	0	0	10	23:00	8	0	0	0	0	8
11:15	5	0	0	0	0	5	23:15	0	0	0	0	0	0
11:30	12	1	0	0	0	13	23:30	3	0	0	0	0	3
11:45	17	0	0	0	0	17	23:45	1	0	0	0	0	1
TOTAL	511	16	2	0	0	529	TOTAL	572	20	0	0	0	592

AM PEAK HOUR	7:15 AM
AM PEAK VOLUME	115

AM PEAK HOUR	3:15 PM
AM PEAK VOLUME	94

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

TOTAL: AM+PM	1,083	36	2	0	0	1,121
% OF TOTAL	96.6%	3.2%	0.2%	0.0%	0.0%	100.0%
AM PEAK	110	4	1	0	0	115
PM PEAK	60	0	0	0	0	60

A021323

Study Site 12 - Hunt Club Apartments

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS81 Dwy west of Goetz.

AM TIME	IN 1	2	3	4	5	TOTAL	PM Time	IN 1	2	3	4	5	TOTAL
0:00	11	0	0	0	0	11	12:00	29	1	0	0	0	30
0:15	7	0	0	0	0	7	12:15	34	0	0	0	0	34
0:30	9	0	0	0	0	9	12:30	28	0	0	0	0	28
0:45	6	0	0	0	0	6	12:45	32	1	0	0	0	33
1:00	3	0	0	0	0	3	13:00	20	2	0	0	0	22
1:15	6	0	0	0	0	6	13:15	40	2	0	0	0	42
1:30	3	0	0	0	0	3	13:30	37	0	0	0	0	37
1:45	7	0	0	0	0	7	13:45	29	0	0	0	0	29
2:00	2	0	0	0	0	2	14:00	28	0	0	0	0	28
2:15	5	0	0	0	0	5	14:15	48	1	0	0	0	49
2:30	5	0	0	0	0	5	14:30	45	0	0	0	0	45
2:45	8	0	0	0	0	8	14:45	33	1	0	0	0	34
3:00	5	0	0	0	0	5	15:00	33	1	0	0	0	34
3:15	2	0	0	0	0	2	15:15	51	0	0	0	0	51
3:30	2	0	0	0	0	2	15:30	48	0	1	0	0	49
3:45	8	0	0	0	0	8	15:45	62	0	0	0	0	62
4:00	0	0	0	0	0	0	16:00	56	1	0	0	0	57
4:15	3	0	0	0	0	3	16:15	42	0	0	0	0	42
4:30	1	0	0	0	0	1	16:30	49	0	0	0	0	49
4:45	10	0	0	0	0	10	16:45	39	0	0	0	0	39
5:00	5	0	0	0	0	5	17:00	59	0	0	0	0	59
5:15	8	0	0	0	0	8	17:15	43	0	0	0	0	43
5:30	6	0	0	0	0	6	17:30	40	0	0	0	0	40
5:45	5	0	0	0	0	5	17:45	50	1	0	0	0	51
6:00	6	0	0	0	0	6	18:00	38	1	0	0	0	39
6:15	3	0	0	0	0	3	18:15	33	0	0	0	0	33
6:30	8	0	0	0	0	8	18:30	44	0	0	0	0	44
6:45	9	0	0	0	0	9	18:45	35	1	0	0	0	36
7:00	9	0	0	0	0	9	19:00	33	0	0	0	0	33
7:15	14	0	0	0	0	14	19:15	29	0	0	0	0	29
7:30	15	0	0	0	0	15	19:30	27	0	0	0	0	27
7:45	34	0	0	0	0	34	19:45	20	1	0	0	0	21
8:00	44	1	0	0	0	45	20:00	29	0	0	0	0	29
8:15	47	2	1	0	0	50	20:15	25	0	0	0	0	25
8:30	23	0	0	0	0	23	20:30	33	0	0	0	0	33
8:45	37	0	0	0	0	37	20:45	29	0	0	0	0	29
9:00	14	0	0	0	0	14	21:00	29	0	0	0	0	29
9:15	13	0	0	0	0	13	21:15	21	0	0	0	0	21
9:30	16	0	0	0	0	16	21:30	32	0	0	0	0	32
9:45	10	1	0	0	0	11	21:45	10	0	0	0	0	10
10:00	11	1	0	0	0	12	22:00	15	0	0	0	0	15
10:15	16	2	0	0	0	18	22:15	18	0	0	0	0	18
10:30	19	0	0	0	0	19	22:30	21	0	0	0	0	21
10:45	20	0	0	0	0	20	22:45	19	0	0	0	0	19
11:00	14	1	1	0	0	16	23:00	11	0	0	0	0	11
11:15	20	0	0	0	0	20	23:15	21	0	0	0	0	21
11:30	17	0	0	0	0	17	23:30	10	0	0	0	0	10
11:45	19	0	0	0	0	19	23:45	14	0	0	0	0	14
TOTAL	565	8	2	0	0	575	TOTAL	1,571	14	1	0	0	1,586
				AM PEAK HOUR		8:00 AM					AM PEAK HOUR		3:15 PM
				AM PEAK VOLUME		155					AM PEAK VOLUME		219

		TOTAL: AM+PM	2,136	22	3	0	0	2,161
CLASS 1	CARS	% OF TOTAL	98.8%	1.0%	0.1%	0.0%	0.0%	100.0%
CLASS 2	2-AXLE TRUCKS	AM PEAK	151	3	1	0	0	155
CLASS 3	3-AXLE TRUCKS	PM PEAK	192	1	0	0	0	193
CLASS 4	4-AXLE TRUCKS							
CLASS 5	5-AXLE + TRUCKS							

A13123

Study Site 12 - Hunt Club Apartments

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: THREE DAYS **CITY:** WRCOG

JOB #: SC3826 **LOCATION:** CLASS81 Dwy west of Goetz.

AM TIME	OUT 1	2	3	4	5	TOTAL	PM Time	OUT 1	2	3	4	5	TOTAL
0:00	5	0	0	0	0	5	12:00	27	1	0	0	0	28
0:15	4	0	0	0	0	4	12:15	17	0	0	0	0	17
0:30	6	0	0	0	0	6	12:30	42	1	0	0	0	43
0:45	1	0	0	0	0	1	12:45	29	1	0	0	0	30
1:00	2	0	0	0	0	2	13:00	31	2	0	0	0	33
1:15	5	0	0	0	0	5	13:15	24	0	0	0	0	24
1:30	4	0	0	0	0	4	13:30	39	3	0	0	0	42
1:45	1	0	0	0	0	1	13:45	40	1	0	0	0	41
2:00	2	0	0	0	0	2	14:00	53	0	0	0	0	53
2:15	4	0	0	0	0	4	14:15	38	0	0	0	0	38
2:30	2	0	0	0	0	2	14:30	32	0	0	0	0	32
2:45	4	0	0	0	0	4	14:45	25	0	0	0	0	25
3:00	4	0	0	0	0	4	15:00	38	1	0	0	0	39
3:15	8	0	0	0	0	8	15:15	39	1	0	0	0	40
3:30	12	0	0	0	0	12	15:30	38	0	1	0	0	39
3:45	15	0	0	0	0	15	15:45	39	0	0	0	0	39
4:00	13	0	0	0	0	13	16:00	28	0	0	0	0	28
4:15	11	0	0	0	0	11	16:15	32	1	0	0	0	33
4:30	23	0	0	0	0	23	16:30	33	0	0	0	0	33
4:45	17	0	0	0	0	17	16:45	23	0	0	0	0	23
5:00	10	0	0	0	0	10	17:00	28	0	0	0	0	28
5:15	18	0	0	0	0	18	17:15	39	0	0	0	0	39
5:30	21	0	0	0	0	21	17:30	31	0	0	0	0	31
5:45	28	0	0	0	0	28	17:45	27	0	0	0	0	27
6:00	14	0	0	0	0	14	18:00	17	0	0	0	0	17
6:15	25	1	0	0	0	26	18:15	24	0	0	0	0	24
6:30	37	0	0	0	0	37	18:30	19	0	0	0	0	19
6:45	30	0	0	0	0	30	18:45	24	0	0	0	0	24
7:00	47	1	0	0	0	48	19:00	20	1	0	0	0	21
7:15	65	0	0	0	0	65	19:15	17	0	0	0	0	17
7:30	72	0	0	0	0	72	19:30	13	0	0	0	0	13
7:45	87	0	0	0	0	87	19:45	17	0	0	0	0	17
8:00	53	0	0	0	0	53	20:00	10	0	0	0	0	10
8:15	30	1	0	0	0	31	20:15	18	2	0	0	0	20
8:30	16	2	1	0	0	19	20:30	18	0	0	0	0	18
8:45	17	0	0	0	0	17	20:45	16	0	0	0	0	16
9:00	30	0	0	0	0	30	21:00	9	0	0	0	0	9
9:15	14	0	0	0	0	14	21:15	8	0	0	0	0	8
9:30	23	0	0	0	0	23	21:30	16	0	0	0	0	16
9:45	20	0	0	0	0	20	21:45	8	0	0	0	0	8
10:00	25	1	0	0	0	26	22:00	5	0	0	0	0	5
10:15	27	0	0	0	0	27	22:15	4	0	0	0	0	4
10:30	17	1	0	0	0	18	22:30	11	0	0	0	0	11
10:45	31	0	0	0	0	31	22:45	10	0	0	0	0	10
11:00	24	0	0	0	0	24	23:00	7	0	0	0	0	7
11:15	25	1	0	0	0	26	23:15	6	0	0	0	0	6
11:30	22	0	0	0	0	22	23:30	2	0	0	0	0	2
11:45	16	0	1	0	0	17	23:45	1	0	0	0	0	1
TOTAL	987	8	2	0	0	997	TOTAL	1,092	15	1	0	0	1,108

AM PEAK HOUR	7:15 AM
AM PEAK VOLUME	277

AM PEAK HOUR	1:30 PM
AM PEAK VOLUME	174

CLASS 1	CARS
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4-AXLE TRUCKS
CLASS 5	5-AXLE + TRUCKS

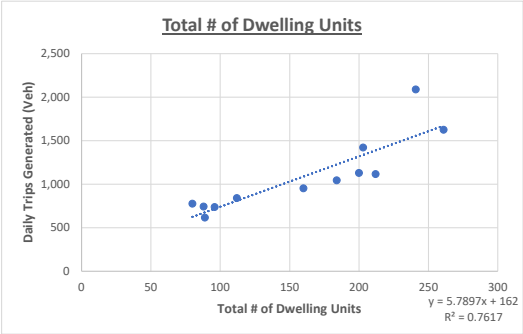
TOTAL: AM+PM	2,079	23	3	0	0	2,105
% OF TOTAL	98.8%	1.1%	0.1%	0.0%	0.0%	100.0%
AM PEAK	277	0	0	0	0	277
PM PEAK	125	0	0	0	0	125

Appendix B: Apartment Characteristics

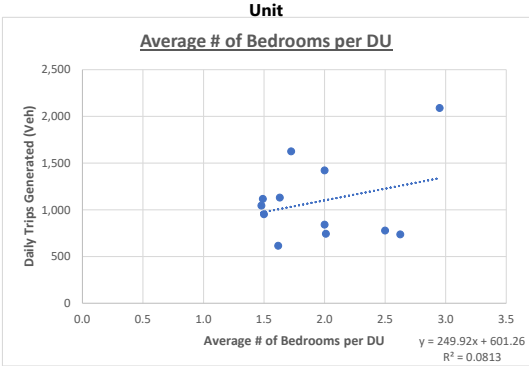
Study Site #	TUMF Zone	Name	Address	Phone #	Apartment Website	# of Apartment Style								Apartment Size (Sq. Ft.)							
						Studio	One Bedroom	Two Bedrooms	Three Bedrooms	Four Bedrooms	Total # of DUs	Total # of Bedrooms	Average # Bedrooms per DU	Studio	One Bedroom	Two Bedrooms	Three Bedrooms	Four Bedrooms	Average Size of Unit per Complex	Sum of Area of All Dus	Average Square Footage per DU (Sq. Ft.)
1	Central Zone	Oakwood Apartments	15170 Perris Blvd, Moreno Valley, CA 92551	+1 951-243-0800	N/A	-	-	80	93	68	241	711	3.0	-	-	832	1,042	1,282	1,052	250,642	1040.01
2	Northwest Zone	Springbrook Park Apartments	1066 Orange St, Riverside, CA 92501	+1 951-682-9774	N/A	-	40	32	40	-	112	224	2.0	-	800	967	1,100	-	956	106,944	954.86
3	Central Zone	Vista Springs Apartments	21550 Box Springs Rd, Moreno Valley, CA 92557	+1 951-276-0334	N/A	-	108	104	-	-	212	316	1.5	-	690	960	-	-	825	174,360	822.45
4	Northwest Zone	Vesada Apartment Homes	3390 Country Village Road, Riverside, CA 92509	+1 951-462-2198	california.weidner.com	18	72	153	18	-	261	450	1.7	629	782	1,021	1,168	-	900	244,863	938.17
5	Southwest Zone	Morning Ridge Apartments	30660 Milky Way Dr, Temecula, CA 92592	+1 951-699-0886	morningridgeapts.com	-	74	126	-	-	200	326	1.6		680	950	-	-	815	170,020	850.10
6	Northwest Zone	Stonegate Apartments	6506 Doolittle Ave, Riverside, CA 92503	(951) 351-9445	stonegateriverside.com	1	79	80	-	-	160	240	1.5	300	705	905	-	-	637	128,395	802.47
7	Southwest Zone	River's Edge Apartment Homes	2088 E Lakeshore Dr, Lake Elsinore, CA 92530	+1 951-678-8553	riversedgeapartmentliving.com	-	96	88	-	-	184	272	1.5	-	762	1,089	-	-	926	168,984	918.39
8	Hemet/San Jacinto Zone	Mayberry Colony Apartments	40389 Mayberry Ave # A1, Hemet, CA 92544	+1 951-929-3380	www.mayberrycolony.com	-	34	55	-	-	89	144	1.6	-	790	962	-	-	876	79,770	896.29
9	Pass Zone	Summit Ridge Apartments	555 N Hathaway St # 1101, Banning, CA 92220	+1 951-849-3001	www.summitridgebanning.com	-	-	40	40	-	80	200	2.5	-	850	1,058	-	-	954	42,320	529.00
10	Hemet/San Jacinto Zone	Riverdale Apartments	1250 S Cawston Ave, Hemet, CA 92545	+1 951-766-5672	www.rentriverdaleapts.com	-	-	36	60	-	96	252	2.6	-	-	984	1,033	-	1,009	97,404	1014.63
11	Northwest Zone	Parkridge Meadows Apartments	219 E Parkridge Ave, Corona, CA 92879	+1 951-736-8681	www.allenproperties.net	-	-	87	1	-	88	177	2.0	-	-	780	-	-	780	67,860	771.14
12	Central Zone	Hunt Club Apartments	1355 S Perris Blvd, Perris, CA 92570	+1 951-657-0228	www.huntclubperris.com	-	-	203	-	-	203	406	2.0	-	-	962	-	-	962	195,286	962.00

Appendix C: Correlation Plots

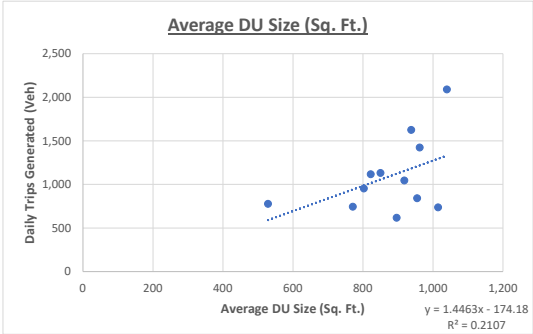
Daily Trip Generation by # of Dwelling Units in Complex



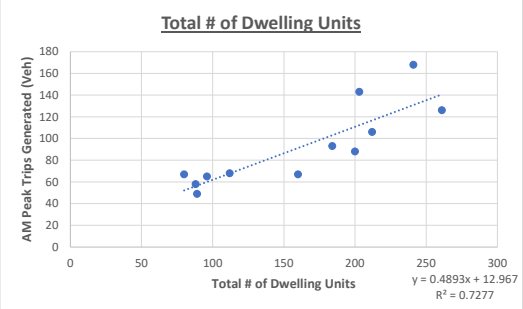
Daily Trip Generation by Average # of Bedrooms Per Dwelling Unit



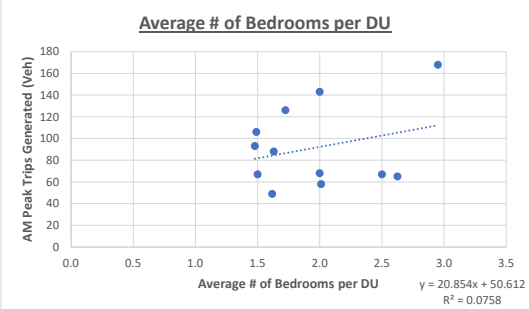
Daily Trip Generation by Average Size of Dwelling Unit



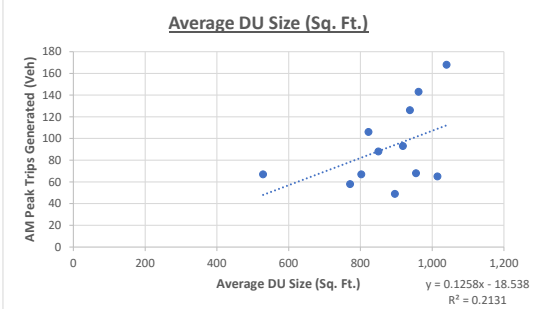
AM Peak Trip Generation by # of Dwelling Units in Complex



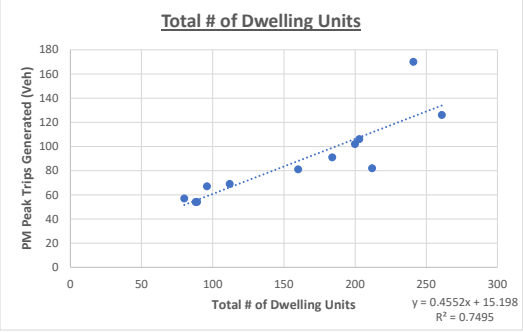
AM Peak Trip Generation by Average # of Bedrooms Per Dwelling Unit



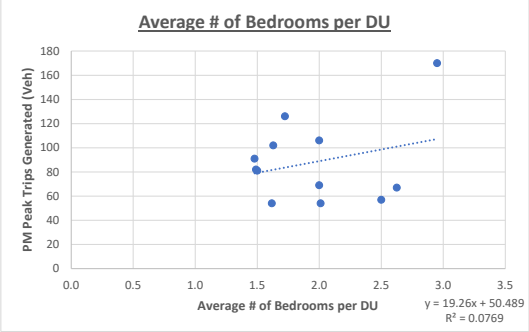
AM Peak Trip Generation by Average Size of Dwelling Unit



PM Peak Trip Generation by # of Dwelling Units in Complex



PM Peak Trip Generation by Average # of Bedrooms Per Dwelling Unit



PM Peak Trip Generation by Average Size of Dwelling Unit