

CITY OF COURTENAY

Community Traffic Calming Program



OLD ORCHARD NEIGHBOURHOOD

**Prepared by the
Old Orchard Traffic Advisory Group
June 13, 2006**

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1.0 Executive Summary

The City of Courtenay is experiencing a sustained period of growth with resulting impacts on our infrastructure system. The road network especially, is feeling the effects of growth. These impacts are often manifested in increasing traffic issues in the smaller residential areas of the community. The RCMP, facing budgetary constraints has recommended communities address these issues by forming neighbourhood traffic calming groups.

The Old Orchard is a designated heritage area of Courtenay with homes dating from the 1910's. Increasingly over the last 7 yrs the residents association has expressed concerns to City Council that the traffic issues are increasing and need to be addressed. In November 2004, the City received a formal petition from the residents requesting the formation of a Traffic Calming Group. This Group was formed in December 2004, with the mandate to evaluate concerns and forward recommendations to Council.

A representative group of residents was selected to form the core of the Group. The group met every 2 weeks between January and June of 2005. Meetings continued in September and October 2005. Initially concerns were gathered from residents and a priority list was generated. Working in concert with City staff, data was collected and traffic-calming options were collected and evaluated.

The main concerns identified by residents were as follows:

- Traffic impacts of pending developments
- Short cutting through the residential area
- Excess traffic and speeding on Anderton, Cliffe and 3rd Street
- Maintaining pedestrian safety and access through out

The complete list of concerns is included on page 11.

Throughout the process the group performed cooperatively and effectively. The group maintained communication with residents for ongoing feedback. Options were evaluated with the engineering staff, taking into account traffic engineering standards and budgetary constraints.

The main recommendations of the group are as follows:

- Traffic circles or 4-way stops on 3rd Street at Duncan and Fitzgerald Avenue
- Partial closures to traffic entering 1st and 2nd Streets from Cliffe Avenue
- Signage changes
- Final upgrade to Cliffe Avenue as per group recommendations
- Improvements to intersection at 1st and Anderton

The complete list of recommendations is included on page 17.

The draft report was presented to a public open house in October 2005. Comments from the open house have been reviewed by the group and incorporated into this report. Also added to this report are comments from the Community Transportation Study completed in June 2006.

2.0 Introduction

2.1 Background

During the last 10 years the City of Courtenay has experienced considerable growth (approximately 4% per year). The present population of the City is approximately 22,000. The current pace of development may continue for the next 8 to 10 years. As a result the City is required to continually study and upgrade the infrastructure requirements. A community wide sanitary sewer study is currently underway. A community traffic study will be completed in June 2006. Along with these, smaller infrastructure studies are continually being upgraded to address neighbourhood areas of the community as development occurs.

The strains on the road system become particularly evident to motorists. Some roads in Courtenay are experiencing growth of 8% per year with some major roads and bridges approaching their capacity. Maintaining and upgrading the road network is one of the major financial burdens on a growing community.

Along with increased traffic volumes, some areas are experiencing speeding, short cutting, parking issues etc. The RCMP have indicated publicly that limited resources do not permit them to address all the speeding and traffic issues. They recommend that individual communities address concerns with traffic calming measures such as stop signs, speed bumps and traffic circles.

The Old Orchard Area of Courtenay is recognized in the OCP (Official Community Plan) as a heritage area. The Orchard is one of the oldest parts of Courtenay with some of the homes dating back to the 1910's. The Old Orchard Resident's Association was formed to promote and protect the old country charm and character of this neighbourhood.

Over the last 7 years the Resident's Association have had discussions with the City regarding the increasing traffic concerns in the area. In October of 2004 the residents submitted a petition to City Council formally requesting a review of their traffic issues. Council passed a resolution on November 6, 2004 to form a traffic calming Group, review the traffic issues and submit recommendations to Council. The first meeting of the Group was held January 20, 2005.

2.2 Scope of Work and Study Area

The purpose of the Traffic Calming Group is to study the existing traffic patterns, determine the problems and produce some recommended solutions.

The steps of the calming process are to follow closely the recommendations laid out in the *Canadian Guide to Neighbourhood Traffic Calming*. The guide is produced by the Transportation Association of Canada and is widely utilized by municipalities across Canada.

The main steps in the process are as follows:-

- Select a representative group of residents to form the Group
- Define the Study Area
- Gather and evaluate the main traffic concerns
- Collect the field data required
- Explore and evaluate traffic calming options
- Produce a draft report
- Hold a public meeting to collect resident input
- Incorporate public in-put and produce a final report
- Submit report to Council for approval and implementation

Early in the process the Group defined the study area (Map page 6). The study area is bounded by the Courtenay River on the east, the Puntledge River on the north, Menzies Avenue on the west and 5th Street on the south. The area was selected mainly to cover the Old Orchard Area as well as adjacent areas and streets which directly influenced the traffic flows in the Orchard. The Group felt that by addressing these contributory traffic flows they could provide better calming alternatives.

Fifth Street was included in the study area to address the expanding business community and the affects on traffic in the Old Orchard.

2.3 Group Members

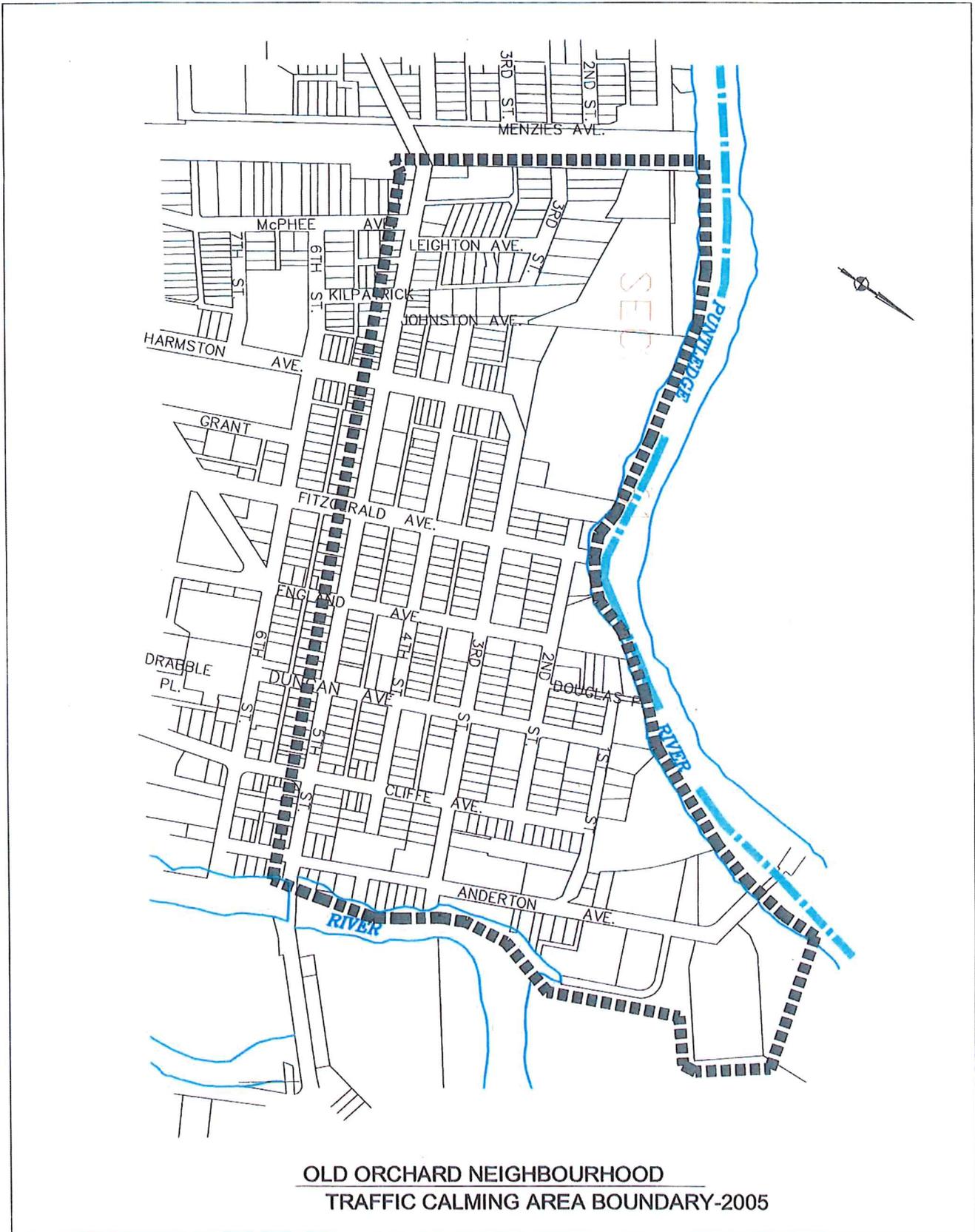
Group Members

Dale Graham, Resident
Steve Schoenhoff, Resident
Sue Bennett, Resident
Bill Atkinson, Resident
Peter Merrick, Resident

City Representatives

Kevin Lagan, P. Eng., Chairperson from January to April, 2005
Ian Farquharson, P. Eng., Chairperson from April to October 2005
Dan Mooney, A.Sc.T., Engineering Technologist
Peter Crawford, MCIP, Director of Planning Services
Geoff Garbutt, MCIP, Planner

2.4 Map of the Old Orchard



3.0 Developing the Neighbourhood Traffic Calming Plan

This Traffic Calming Plan has been developed in accordance with the '*Canadian Guide to Neighbourhood Traffic Calming*' [Ref.1.]. While some of the steps in the procedure were not applicable the general plan process was followed. The following Sections 3.1 to 3.5 detail the steps that were considered and where appropriate applied to the traffic calming process.

3.1 Initiate the Study

Activities undertaken at the beginning of a traffic calming study can determine whether or not the resulting plan will be successful. At study initiation the study team should:

3.1.1 Identify the need for a traffic calming study

The need for a study can be identified in a variety of ways. In many communities, studies are initiated in response to requests by neighbourhood residents or organizations. Where this is the case, a formal initiation policy and process is desirable to ensure that requests are addressed consistently and objectively. Some studies are initiated often as a result of ongoing monitoring efforts by municipal staff in communities where established traffic calming programs exist. A formal petition and request was presented to Council in November 2004. An Old Orchard Traffic Calming Group was formed in January, 2005.

3.1.2 Establish an Advisory Group

An Advisory Group comprising community representatives should be established to effectively involve the community.

3.1.3 Define the study scope and study area

A clearly defined Terms of Reference and study area should be established before the study team proceeds. This helps to ensure that key objectives, constraints, deliverables and points of public contact are identified and agreed upon in advance. Municipal staff, with the assistance of the Advisory Group, typically define the study scope and may seek Council endorsement before proceeding. Early in the Old Orchard Traffic Calming process Kevin Lagan, P. Eng., Director of Operational Services laid out the key responsibilities and expectations of the Group. In addition financial and traffic engineering requirements were also clarified.

3.2 Identify Problems

At the outset of a traffic calming study, it is important to clearly identify the magnitude and nature of traffic and transportation problems to be addressed. To identify these problems, the study team should:

3.2.1 Hold Community events

Community events are typically held at the outset of the study to identify and clarify the issues to be addressed and to explain the study process to the community. Early public involvement is critical to the success of the project, and should be actively facilitated by the Advisory Group.

3.2.2 Collect data

Data should be collected to identify, confirm and quantify the extent of any problems. This information will be used to identify appropriate traffic calming measures, and to establish “before” conditions for subsequent monitoring of the implemented plan.

3.2.3 Quantify problems

Based on an analysis of the collected data, quantify the magnitude of reported problems (e.g. the number of vehicles per hour or per day), the duration of the problem (e.g. peak periods or all-day), the direction and route of traffic, and other key characteristics. This information will be used to identify potential traffic calming measures, and to justify the need for measures to persons who might oppose the traffic calming plan.

3.2.4 Confirm the identified problems

Ensure that the descriptions of problems are consistent with the community’s perceptions. This is particularly important in cases where analysis of data has indicated that a reported problem is not technically a concern, such as an observed 85th percentile speed less than the posted speed limit, in a location where speeding was perceived. If necessary, collect additional data, or determine if other concerns exist in cases where reported problems did not materialize. Speeding is often reported as a concern, for example, when the real problem is a high traffic volume.

3.3 Develop Plans

Once problems have been identified and quantified, the next stage of the study involves developing the traffic calming plan. At this stage, the study team should.

3.3.1 Examine arterial streets

Prior to considering traffic calming, traffic operations on adjacent arterial streets should be examined to ensure that there are no operational problems or deficiencies which might be contributing to traffic concerns in the neighbourhood. If there are any, identify possible modifications to the adjacent arterial street network to eliminate or reduce traffic problems on the neighbourhood’s local and collector residential streets.

3.3.2 Select potential traffic calming measures

Potential measures should be selected using the information provided in Table 3.2 of the *Canadian Traffic Calming Manual*. Identify all traffic calming measures which would achieve the desired result(s) in a particular location. Determine the potential implications of these traffic calming measures. The implications of a specific measure might be undesirable or inappropriate for a particular location, and consequently the measure should not be considered. For example, a full street closure would eliminate through traffic entirely, but might also significantly restrict local access for residents, businesses and emergency vehicles. If local access was considered important in this location, then a full closure would not likely be appropriate.

As a further means of selecting potential traffic calming measures, consider using measures in combination, where opportunities to do so will be provided by the City. Also consider the effects of traffic calming measures on adjacent streets, to ensure that problems would be eliminated or minimized, and would not simply be shifted from one location to another. Confirm that all measures would work together to achieve the desired balance between safety, residential access, cost and acceptable traffic conditions.

3.3.3 Develop alternative traffic calming plans

Incorporate the selected traffic calming measures into one or two comprehensive traffic calming plans, or one plan with options for specific locations. It is often most effective to summarize the proposed plan on a map of the neighbourhood, with sketches illustrating the location and configuration of specific measures.

3.3.4 Measure community support for the alternative plans

A survey of the community is essential to determine the level of support and to obtain feedback regarding options and specific features of the plans. As necessary, modify the plans to address additional problems and issues raised by the community.

3.3.5 Present the recommended traffic calming plan to the public

Upon completion of the technical and public review of the alternative plans, present the recommended plan to the public at an open house or other appropriate forum. The forum should provide the opportunity for the Advisory Group and municipal staff to address questions and comments from the public about the features of the recommended traffic calming plan, and to receive input. The input received could be incorporated into the traffic calming plan, provided the changes proposed are not significant.

3.3.6 Develop an implementation strategy

Once the draft final plan is confirmed, prepare cost estimates and identify priorities, timing and staging of implementation. Costs can be estimated based on information provided by the City.

3.3.7 Prepare final report and submit the draft final plan for approval

Prepare the draft final version of the plan, in anticipation of implementation. If Council approval is required, submit the plan (and an accompanying report if appropriate) to Council for approval.

3.4 Implement Plan

After the traffic calming plan has been approved, the final stage involves design, implementation and monitoring. At this point in the process, municipal staff typically assume the lead and:

3.4.1 Prepare designs

Construction drawings should be prepared based on guidelines provided by the City. Locations for implementation of traffic calming measures should be detailed based on information provided by the City.

3.4.2 Implement measures

Budget, tender (if required) and construct the traffic calming measures. Where appropriate, implement measures on a temporary or trial basis, to confirm that they are effective in addressing identified problems, prior to constructing the measures on a permanent basis. Using temporary measures provides an opportunity to modify the configuration or location of a device without incurring significant costs.

3.4.3 Review the Plan

Commit to reviewing the plan and its effectiveness after a reasonable amount of time has elapsed. Possibly, the focus of the plan may change, or new priorities may emerge.

3.5 Issues Discussed

The Old Orchard Traffic Group attended meetings every two-weeks from January 2005 until June 2005. Meetings were continued in September and October 2005. Through this period numerous traffic issues were explored and evaluated. The following is a description of the major issues discussed.

List of Resident's Original Concerns

- ◆ Development and Potential consequences.
- ◆ Rat running through residential streets: 1st, 2nd, 3rd St, Duncan, England and Anderton Ave
- ◆ Speeding – All roads linked with wide streets and no stops on long stretches of 3rd St, Cliffe and Anderton Ave
- ◆ Traffic volume on residential roads
- ◆ Safety at intersections: Anderton Ave at 1st St; Cliffe Ave and 1st St, Anderton Ave and 5th St, Duncan Ave and 3rd St
- ◆ More pedestrian friendly features needed, curbs, sidewalks, walkways, link to riverway?
- ◆ Parking
- ◆ Truck Traffic

Constraints

The group was made aware early in the process that there would be financial constraints on any major traffic changes. Signage, painting and barricades could easily be accommodated within the yearly operating budget. However major curbing, drainage, sidewalk and other significant capital improvements would require more involved budgetary planning and approval. As an example, currently the proposed sidewalk list of work in Courtenay exceeds the sidewalk budget by a factor of 10:1. Also changes would be subject to the normal traffic engineering review.

Impact of Adjacent Developments

The residents identified four pending developments located in and adjacent to the Orchard neighbourhood, which will likely impact traffic patterns. Each of these projects was reviewed and traffic impacts were quantified for the Group to review.

River Glen (40 Anderton Ave, east side, adjacent to Canterbury Pl)

This development has passed the approval process and construction began in July of 2005. Completed units will be on the market in the spring of 2006. The complex will ultimately consist of 72 residential units. McElhanney Consulting completed a traffic impact study as part of the development approval process (see appendix page 33). The traffic study indicated a peak hour increase of 50 vph from this development. The traffic distribution into the Orchard area is show on the map (appendix page 34). The current level of peak hour traffic on Anderton is 300 vph. The new development will increase peak hour traffic on Anderton Ave by approximately 16%.

3L Development (Anderton Ave, west side, adjacent to Condensory Bridge)

This development in its original configuration was a similar size to River Glen and is projected to have similar traffic impacts. As of June 2006 the project is on hold however it is most likely that a similar multifamily development to that proposed will evolve on the site in the near future.

RV Park (north side of Condensory Bridge).

The Comox Indian Band completed the construction of a 40 unit RV park in the spring of 2005. The park is located outside the City boundary and as such no traffic study was completed. The traffic generated by the RV Park will be most significant during the summer tourism season. Engineering staff estimate that mid season peak hour traffic generated by the park will be roughly 20-30 vph.

Laurel Lodge (280 – 2nd St)

This complex houses full time senior residents. The complex has recently been expressing plans to expand the facility. The concerns for local residents were increased traffic and on street parking issues. The City Planning Division have had discussions with Laurel Lodge and at present they have no formal expansion plans.

The total impact of the four above listed developments is projected to be roughly a 40 - 45% traffic volume increase on Cliffe Ave and Anderton Ave (430 vph total vehicles per peak hour). While 40 – 45% is a significant increase, the total traffic is still below the design volume. Peak hour volumes of 430 vph, translates to a volume at 4300 vehicles per day. Cliffe Ave as a minor arterial has a capacity of 5,000 – 20,000 vpd. Cliffe Ave for necessity will remain as a minor arterial route north out of the City. Every effort needs to be made to ensure the efficient flow of traffic on Cliffe Ave while minimizing impacts on adjacent residences. The future design of Anderton Ave, 1st St, and Cliffe Ave must keep these factors in mind throughout the design process. The Traffic Group strongly recommends that traffic volumes on Cliffe Ave be monitored. Additional measures may be required as volumes increase.

Comox Valley Traffic Study

In 2005 the City will be commissioning a new community wide traffic study to be completed by a traffic engineering consultant. The previous study was completed in 1995, and the City has grown significantly in the interim. The community is currently growing at 4% per annum with traffic flows increasing at 8% on some major routes. The study will evaluate the entire major road network and make prioritized recommendations to be implemented over the next 20 years. Major routes through the Orchard will be considered in this study. The study will be available in the spring of 2006. At that point the Orchard Residents Association may evaluate the study for future impacts to their neighbourhood.

Anderton Avenue

The group raised a number of issues with this collector/arterial roadway. The developments at the north end, pedestrian safety, and future closure of the south end of Anderton were the main issues discussed.

The overriding consideration for Anderton is the pending reconstruction from 5th St to Condensory Bridge to be completed in the next few years. The River Glen development at the north end has provided some of the funding and impetus required to upgrade. The City's preference is to complete the entire section from 5th St to the bridge as one project. Initially planned for 2005 the project was deferred to allow for more detailed planning and budgeting. Part of the design review will be the intersection at Anderton Ave and 1st St. The traffic group identified some traffic safety and pedestrian concerns at this intersection. The Old Orchard Traffic Group has recommended that their concerns be forwarded to the design consultant for consideration in the new reconstruction. These include improving the vehicle safety at 1st St and Anderton Ave, and ensuring safe access for pedestrian traffic across Anderton Ave. In addition the Group recommends installation of a sidewalk along 1st St from Cliffe Ave to Anderton Ave, on the south side.

The south end of Anderton Ave at the intersection with 5th St was raised as an issue. This intersection only allows access for traffic traveling west off the bridge and turning right onto Anderton Ave. Traffic is not allowed to travel from Anderton Ave onto 5th St. Some members of the group expressed an interest in closing this end of Anderton Ave as soon as possible. Other members of the Group were opposed to closing the intersection. The Group was unable to reach a consensus on this issue. Clearly this potential closure will have significant impacts on Anderton Ave, Cliffe Ave and bridge traffic flows. The Community Traffic Study recommends widening the bridge to 4 lanes beyond 2025. The Transportation Study makes no recommendation on the closing of Anderton Ave at 5th St.

The City has indicated that Anderton Ave at 5th St will likely be closed completely in the near future. This will likely be the long-term solution to making bridge traffic flow more efficiently and safely. At this time however, the City's preference is to leave this intersection open. Significant numbers of drivers use this route to access the Filberg Centre, Condensory Bridge and Mt. Washington. The community traffic study will address this issue further. The overriding priority at this location is to maximize the smooth and safe flow of traffic across the two-lane 5th St Bridge which is approaching capacity.

Cliffe Avenue Upgrade Completion

Cliffe Ave north of 5th St is classified as a minor arterial roadway and as such is designed to carry 5000 – 20,000 vehicles per day. The exact capacity of Cliffe Ave as it exists has not been clearly defined by the study. Present traffic volume on Cliffe Ave was counted at 2000 – 2500 vpd. Pending developments may increase that traffic close to 5000 vpd. Cliffe Ave will remain a major route northbound out of the downtown core, across the Condensory Bridge to destinations beyond. Maintaining the efficiency of this route is to remain as a priority for the City. The Old Orchard Traffic Group has taken this into consideration while expressing their desire to minimize excessive impacts to the Orchard and maintaining pedestrian safety. Traffic changes in the next few years may push Cliffe Ave to its capacity. Clearly Orchard residents will be impacted by increasing volumes of traffic. The City must make allowances for these impacts. Maintaining safe pedestrian access throughout the Old Orchard neighbourhood and especially across Cliffe Ave and down to Anderton Ave has been a priority for the group from the start.

Once again, the Traffic Group recommends that future traffic volumes on Cliffe Ave be monitored as they develop. Future traffic calming measures may be required on Cliffe Ave as volumes increase.

Cliffe Ave has recently been upgraded from 5th St to 3rd St. Upgrading the remaining section to 1st St is currently on the City project list to be complete in 2007. The group has expressed a desire to maintain the paved width and landscaped boulevards.

Traffic / Speeding Counts

Traffic and speeding data was collected by City engineering staff throughout the review process. Data was collected at all the high priority intersections. Data collection involved defining the peak flow time periods of the day and collecting actual traffic flow volume in all directions during the recording period. In addition, the number of speeders on specific roads was recorded. Traffic data is recorded in charts (see appendix starting page 26). Extensive staff time was involved in data collection and documentation. The group used the data to evaluate concerns and traffic calming options.

Short cutting (Rat running) thru the Old Orchard

Short cutting is defined as non-residents of the Orchard taking short cut routes through residential streets. This was identified early in the process as a major concern for residents. The most affected streets are 1st, 2nd, 3rd, Duncan, England and Anderton Ave. Traffic counts were recorded at each location of concern. The data indicated clearly that short cutting was occurring however, not to the extent initially thought. The group has recommended that 1st and 2nd streets at Cliffe Ave be partially closed to west bound traffic. This will allow traffic access from 1st and 2nd St onto Cliffe Ave east bound only. This will involve concrete barriers being placed temporarily to test the results. If results are positive then permanent improvements will be installed. The hope is that this will substantially cut down on the short cutting and shift traffic onto the through streets of 3rd and 4th St.

Motor Vehicle Accident Statistics

Traffic studies generally take into consideration the existing statistics on pedestrian and vehicle accidents. These can provide valuable insight to the safety of roadways and intersections. Accident numbers and traffic volumes are compared to determine if the level of incidents is acceptable. The City of Courtenay, thru the RCMP have access to motor vehicle and pedestrian accident statistics for each intersection in the City for the last 5 years. Engineering staff reviewed the major Orchard neighbourhood intersection statistics to assess the existing traffic safety. The results are listed in the appendix page 32. Upon review, there are no intersections that exhibit excessive accident statistics at this time. The group however has a strong desire to encourage pedestrian traffic throughout the Orchard neighbourhood and recommends that whenever possible pedestrian friendly features be incorporated.

Commercial Trucks

Residents indicated that commercial heavy trucks were regularly using the Old Orchard roads as a short cut. Traffic counts indicated light but not excessive volumes of truck traffic. However, engineering staff, as requested by the group issued a letter to each trucking company in the City requesting they utilize the designated truck routes whenever possible. In addition the companies were reminded that there are potential fines for trucks not using truck routes. An updated truck route map was forwarded with each letter. The Group recommends that City staff review the locations of truck route signage to ensure out of town trucks stay on truck routes.

Buses in the Old Orchard

Traffic counts indicated there were a numbers of commuter buses using the Orchard area roads. Review of the bus route map indicated that currently 8 routes travel through the Orchard. Peak hour bus traffic can be up to 12 buses per hour. The main reason being, that the main bus terminus is located at 4th St and Cliffe Ave. The Group finds the level of bus traffic acceptable at this time.

The Group recommends that the City contact B.C. Transit to request bus connections to the north end of Anderton Ave and the R.V. Park.

Ski Traffic

Mt. Washington has become a popular destination for Courtenay skiers, many of whom use Anderton Ave and Cliffe Ave on route to the mountain. Skiing at the mountain was closed during the study period however review of previous year traffic records indicated that at peak hours, traffic on Cliffe Ave can increase by as much as 60% because of ski traffic. While significant it is largely restricted to morning and afternoon rush periods. In addition peak traffic volume generally occurs on weekends when normal traffic volumes are lower.

3rd St Traffic Volumes and speeding

Traffic volumes and speeding on 3rd St is a major consideration for the group. Residents have made clear their concerns regarding excess volume and speed and the resulting hazards to pedestrians.

Third St runs from Cliffe Ave to Harmston Ave with no stops or traffic calming measures in place. Fourth St on the other hand has a number of traffic calming measures in place, which have effectively calmed the volume, and speeding concerns. The down side is that some of the through traffic has likely shifted onto 3rd St where no calming measures are in place.

Upon the request of the group, City staff arranged for traffic counting tubes to be placed across 3rd St at Duncan Ave. These tubes were in place 24 hrs per day for a 7 day period in early June 2005, to collect traffic volumes and speeds. The data collected is on appendix pages 35 through 38.

Results indicated that the average 24 hr traffic volume is 860 vpd (vehicles per day). Third St from Cliffe Ave to England Ave has a local commercial classification. From England Ave to Harmston Ave however the classification changes to residential. Local commercial roadways are expected to carry up to 3000 vpd and residential roads up to 1000 vpd. The traffic through the commercial zone is within capacity. However, traffic thru the residential zone may be approaching capacity.

Speeding results showed that the 85th percentile speed is approximately 50 km/h. The current speed limit for 3rd St is 50 km/h.

The Traffic Group has indicated that 3rd St is a priority. Their desire is to put measures in place to control 3rd St speeding. While the measured traffic counts do not indicate a significant volume or speeding problem the group still feels that the community has a strong desire to address 3rd St safety concerns.

The Group's first choice is to add traffic circles, at Duncan and Fitzgerald Ave. Upon review of the traffic-calming manual, it becomes evident that traffic circles can have positive affects on traffic volume and speeding. In addition the circles open the possibility of landscaping within the circles, which would add significant appeal to the Orchard. City staff are exploring traffic circle designs which can be implemented without costly curbing and drainage costs. If curbing changes can be avoided, traffic circles may be feasible for \$3,000 to \$5,000 each.

The Group's second choice would be 4 way stops in lieu of traffic circles. The volume of traffic on 3rd St is significantly larger than cross traffic on Duncan, England, or Fitzgerald Ave. By application of traffic engineering standards and warrants, 4-way stops may not be warranted at these intersections.

4.0 Draft Recommendations

DRAFT RECOMMENDATIONS (DRAFT TWO) **OLD ORCHARD TRAFFIC CALMING COMMITTEE**

June 17, 2005

GENERAL COMMENTS:

- Neighbourhood to be canvassed first, with flyers and public meeting – likely Sept '05
 - Road closures to be tried with temporary barriers first, and the impact assessed before permanent structures built.
 - Discussion but no consensus on whether items would be implemented all at once or one at a time with progressive re-evaluation.
1. Traffic circles on 3rd St at Duncan Ave and 3rd St at Fitzgerald Ave (or possibly at England Ave) are strongly preferred. Lower-cost options for the circle centre include O.O. residents' maintenance of plantings OR art installations with no maintenance.
 2. Pedestrian linkages are a priority throughout Old Orchard, with particular inclusion of new developments planned on Anderton Ave near Condensory Bridge.
 3. Second choice for traffic calming on 3rd St, are 4-way stops at Duncan Ave and Fitzgerald Ave.
 4. Closure of 1st St at Cliffe Ave; OR partial closure with no access into 1st St from Cliffe Ave but right exit allowed from 1st St onto southbound Cliffe Ave.
 5. Partial closure of 2nd St at Cliffe Ave, so that no access into 2nd St from Cliffe Ave but right exit allowed.
 6. 1st St and Anderton Ave: awaiting further info from engineering study.
 7. "Local Traffic Only" sign on 1st St westbound to be enlarged by 50% and placed in optimal alignment for visibility (unnecessary in the event of road closure or partial closure).
 8. "Traffic Calming Zone" signs to be installed at the entrances to the Old Orchard – specific locations TBA – possible west bound 3rd St near Cliffe Ave, northbound on Anderton Ave when entering from Cliffe Ave, and northbound Duncan Ave, England Ave and Fitzgerald Ave below 3rd St.
 9. Cliffe Ave – installation curbs and gutters throughout, and maintain street trees. Do not widen road. Maintain current width of road surface, adding curb interface at the limit of the existing grassy boulevards. (Note these boulevards have been eroded due to parking on the grass – maintain original grass width).
 10. BC Transit to create bus (or shuttle) linkages to the new campground beyond Condensory Bridge, and the new developments just south of Condensory Bridge.
 11. Anderton Ave retain street parking both sides of the road, south of the proposed River Glen driveway, while north of the driveway the road narrows through the curve toward the bridge. Add sidewalk on south side of 1st St between Anderton Ave and the Right-of-Way.

12. City to promote and pursue communication with the Comox Indian Band regarding transportation routes to/from the new campground just outside city limits, as well as tourism and pedestrian linkages.
13. Request that Planning/Community Services Departments generate plan for parking at the recreation area by Condensory Bridge.

ALREADY AGREED TO:

- “One Way Only” sign entering Douglas Pl increased visibility (resident/city trim bush).
- The “Job Shop” on 4th St to be asked to direct all workshop participants to angle park on Harmston Ave at the old school property rather than on 4th St.
- Removal of 2 parallel parking spots NW corner of 4th St and England Ave to increase visibility/safety.
- Removal of parallel parking spots adjacent to exit lane from Orchard Gate (between 3rd St and 4th St on Fitzgerald Ave) to increase visibility.

4.2 City Staff Report

Engineering staff have primarily facilitated the traffic calming review process. They have provided traffic engineering and budgetary input as well as traffic calming effectiveness advice. Planning staff have attended meetings as requested to present information on developments in progress and City planning issues. The recommendations presented in the report come directly from the traffic group and have been thoroughly evaluated and agreed upon. The following is a City engineering staff review of the recommendations.

The staff have completed a financial estimate of the proposed recommendations (attached). The group has evaluated the traffic issues in depth and the recommendations presented are fully supported by the staff.

All the signage additions will contribute to improved traffic calming.

The partial closures at 1st St and 2nd St are very likely to have positive affects.

Some minor parking and signage changes have already been implemented by the staff to resolve various parking issues.

BC Transit has been contacted to promote the future transit connection to the RV Park. In addition contact with the Comox Indian Band has indicated their desire to work with the City to improve pedestrian access to the RV Park.

Anderton Ave group recommendations are supported by staff and will be incorporated into the design process.

3rd St Calming Measures

Residents have indicated strongly that they want measures taken. The study has indicated that traffic may have been moved from 4th St and 5th St onto 3rd St creating significantly more traffic than was historically the case on 3rd St. It appears likely that traffic volumes created by the downtown business core are impacting the adjacent residential community.

Staff's responsibility is to ensure traffic engineering standards apply and City funds are spent where justified. Traffic circles have been proven to reduce volumes and speeding. In addition landscaped circles can add significant appeal. Staff can likely support funds to be expended on traffic circles if these can be built without costly curbing or drainage changes.

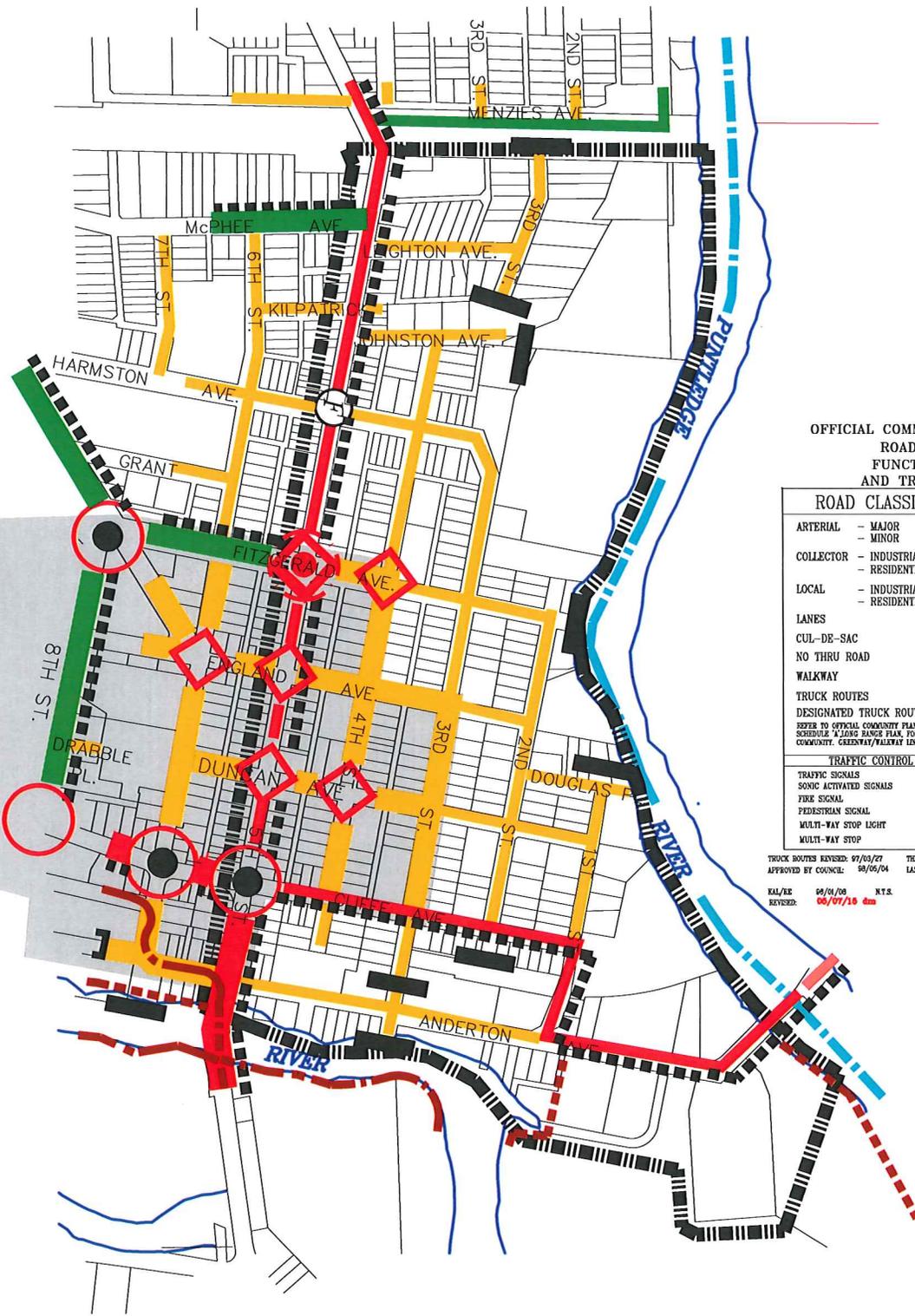
City Staff commend the resident group for their time and efforts. The group recommendations will contribute to a safer and more pedestrian friendly community.

5.0 Financial Implications/Final Recommendations

Old Orchard Traffic Calming Traffic Group Recommendations Financial Estimates

Group Recommendations	Cost Estimated \$
1. Traffic circles on 3 rd St at two locations. Duncan and England or Fitzgerald. Final recommendation to follow evaluation of the traffic circles on Hobson Dr.	\$3,000–\$5,000 per circle
2. Improve pedestrian linkages throughout the Old Orchard whenever possible.	Ongoing Operations
3. Second choice for traffic calming on 3 rd are 4-way stops at Duncan and Fitzgerald.	\$2,000.00 each
4. Partial closure of 1 st St at Cliffe Ave. Traffic would have no access from Cliffe onto 1 st St. However traffic would be able to exit 1 st onto Cliffe.	temporary \$1,000.00 permanent \$2,000-\$4,000
5. Partial closure of 2 nd St at Cliffe Ave. Traffic would have no access from Cliffe onto 2 nd St. However traffic would be able to exit 2 nd onto Cliffe.	temporary \$1,000 Permanent \$2,000-\$4,000
6. 1 st and Anderton intersection realignment. Confirmed by Transportation study.	Capital Budget
7. “Local Traffic Only” sign on 1 st westbound to be enlarged by 50% and placed in optimal alignment for visibility.	150.00
8. “Traffic Calming Zone” signs to be installed at the entrances to the Old Orchard – specific locations TBA – possible west bound 3 rd near Cliffe, northbound on Anderton, and northbound Duncan, England and Fitzgerald below 3 rd St	250.00 Each
9. Cliffe Avenue – Install curbs, gutters and sidewalks throughout, and maintain street trees. Maintain current width of road surface, adding curb interface at the limit of the existing grassy boulevards.	Capital Budget
10. Request BC Transit to create bus (or shuttle) linkages to the new campground beyond Condensory Bridge, and the new developments just south of Condensory Bridge.	N/C
11. Future Anderton Ave north of 1 st St to include two driving lanes and parking on both sides. Boulevard and street trees to be included on both sides.	Capital Budget
12. City to promote and pursue communication with the Comox Indian Band regarding transportation routes to/from the new campground just outside city limits, as well as tourism and pedestrian linkages.	N/C
13. City to explore option of providing more recreational parking adjacent to the Condensory Bridge.	N/C

6.0 Data Collected



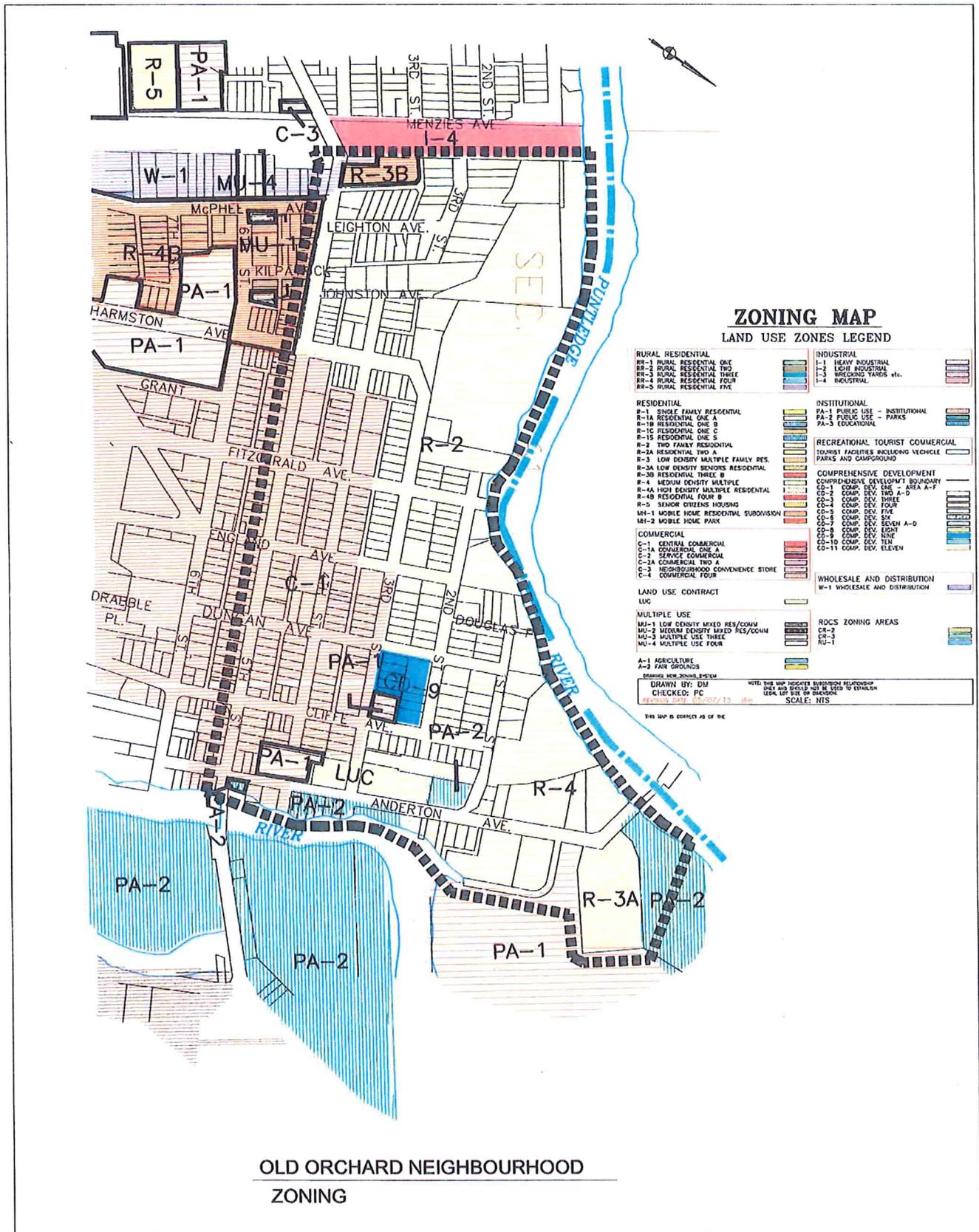
OFFICIAL COMMUNITY PLAN - BYLAW NO.2387
 ROAD NETWORK - MAP NO.3
 FUNCTIONAL CLASSIFICATIONS
 AND TRAFFIC CONTROL DEVICES

ROAD CLASSIFICATION	EXISTING	FUTURE
ARTERIAL - MAJOR		
ARTERIAL - MINOR		
COLLECTOR - INDUSTRIAL/COMMERCIAL		
COLLECTOR - RESIDENTIAL		
LOCAL - INDUSTRIAL/COMMERCIAL		
LOCAL - RESIDENTIAL		
LANES		
CUL-DE-SAC		
NO THRU ROAD		
WALKWAY		
TRUCK ROUTES		
DESIGNATED TRUCK ROUTE AREAS		
REFER TO OFFICIAL COMMUNITY PLAN, SCHEDULE A LONG RANGE PLAN FOR COMMUNITY GREENWAY/WALKWAY LINKAGES		
TRAFFIC CONTROL DEVICES		
TRAFFIC SIGNALS		
SONIC ACTIVATED SIGNALS		
FIRE SIGNAL		
PEDESTRIAN SIGNAL		
MULTI-WAY STOP LIGHT		
MULTI-WAY STOP		

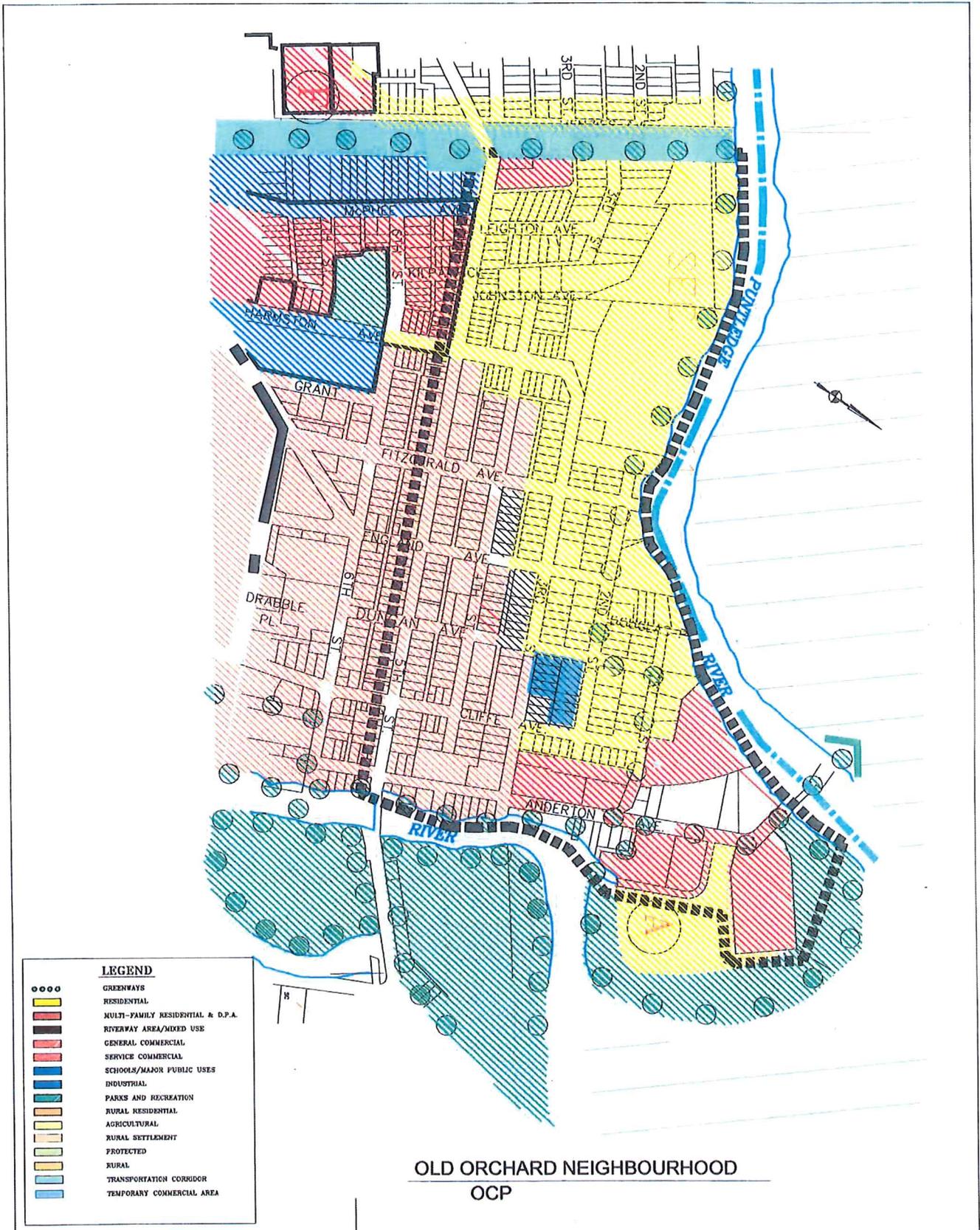
TRUCK ROUTES REVISED: 07/03/27 THIS DRAWING IS CORRECT AS OF THE
 APPROVED BY COUNCIL: 08/05/04 LAST REVISION DATE SHOWN
 RAL/EE 08/04/08 N.T.S.
 REVISED: 08/07/16 dm

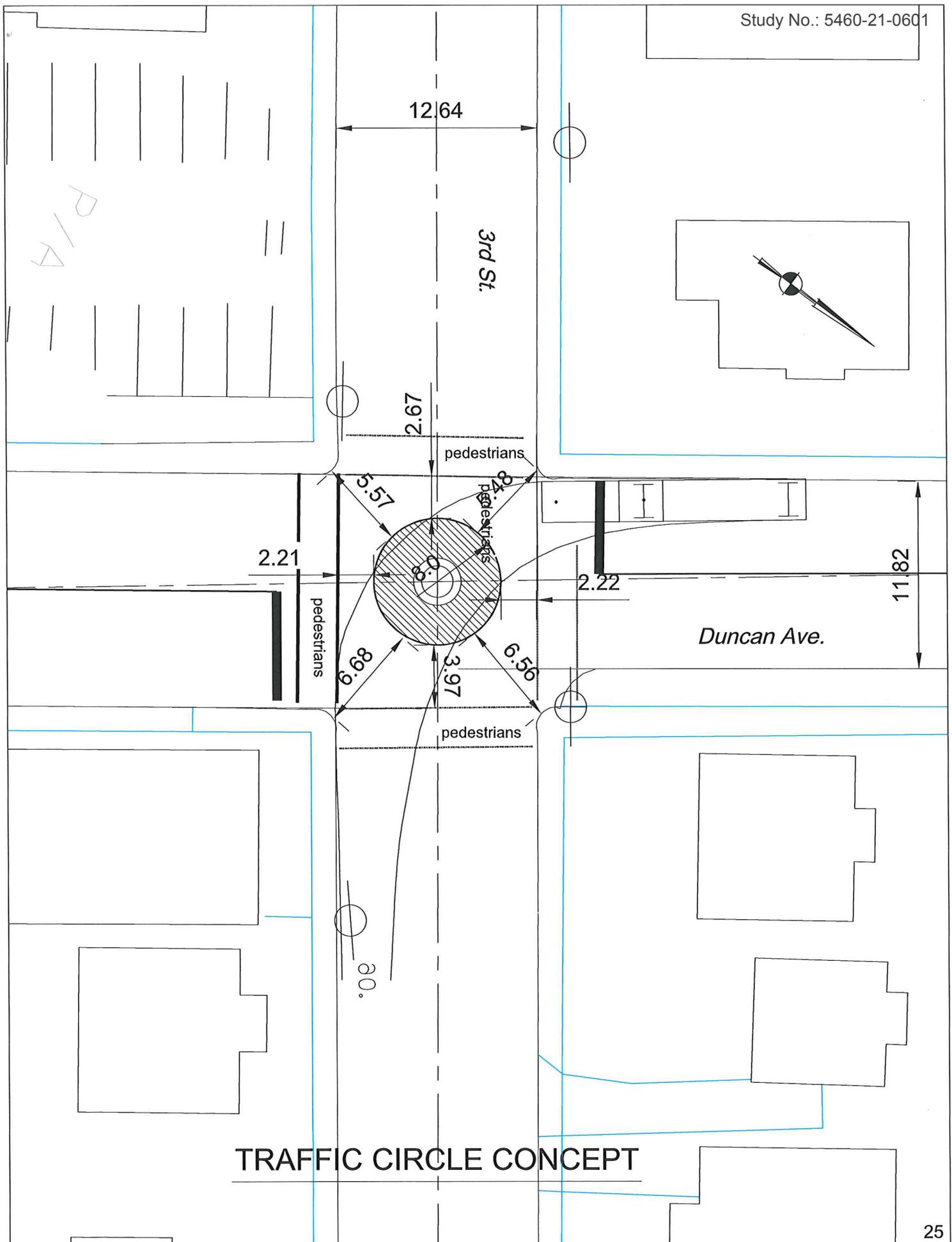
ROAD NETWORK

OLD ORCHARD NEIGHBOURHOOD

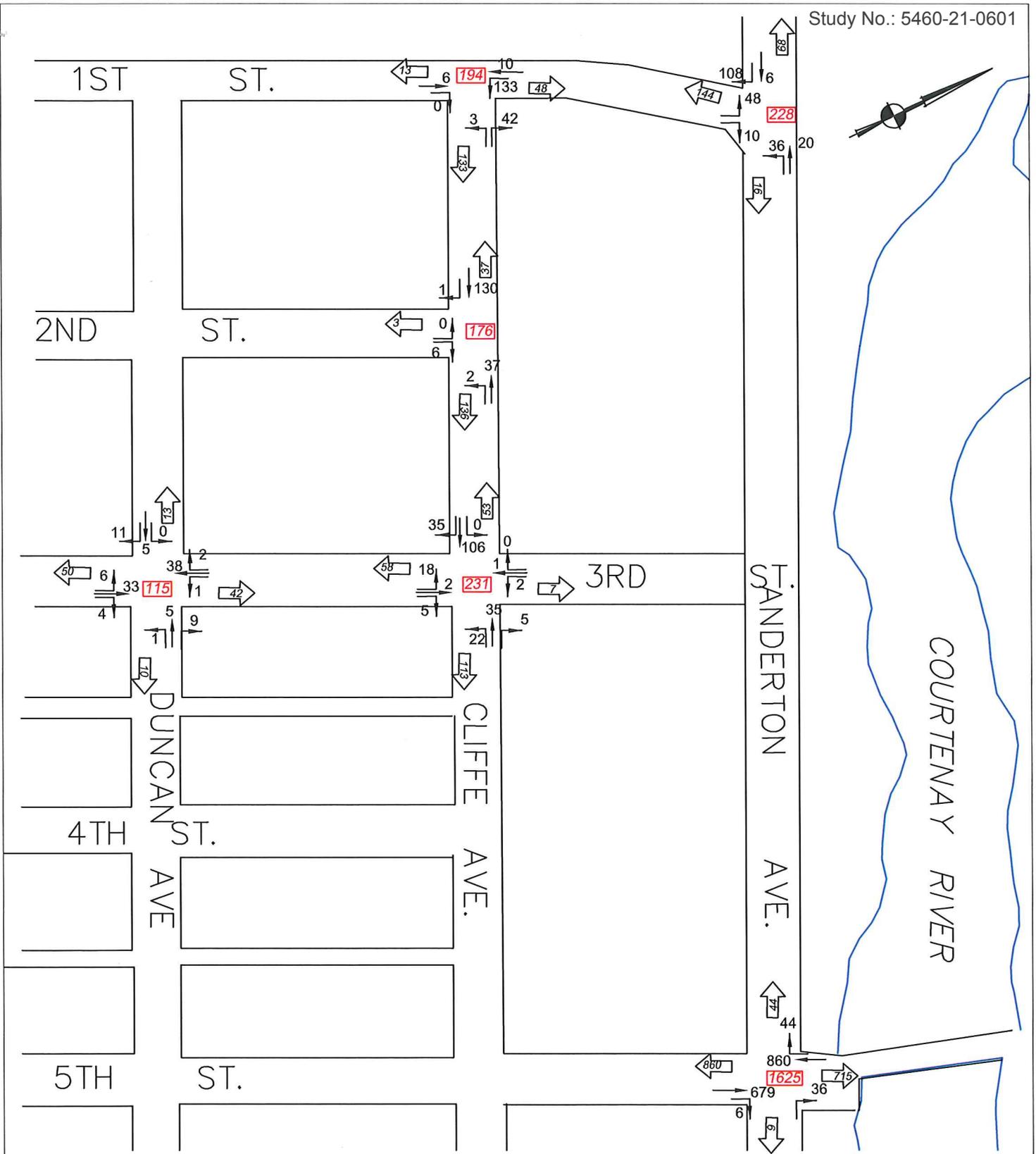


OLD ORCHARD NEIGHBOURHOOD
ZONING



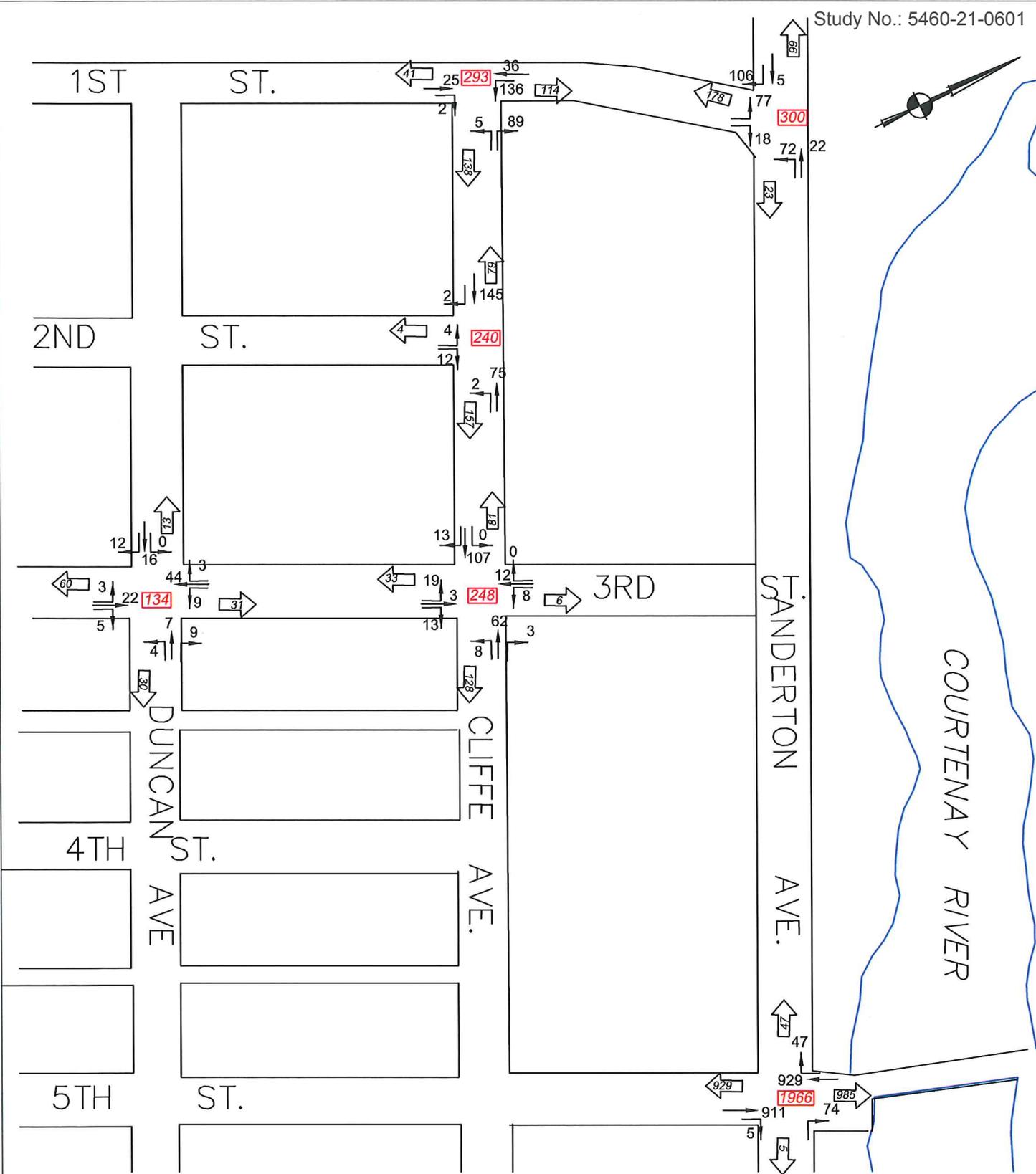


TRAFFIC CIRCLE CONCEPT



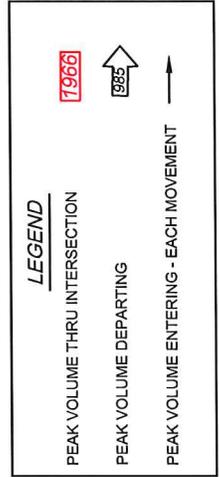
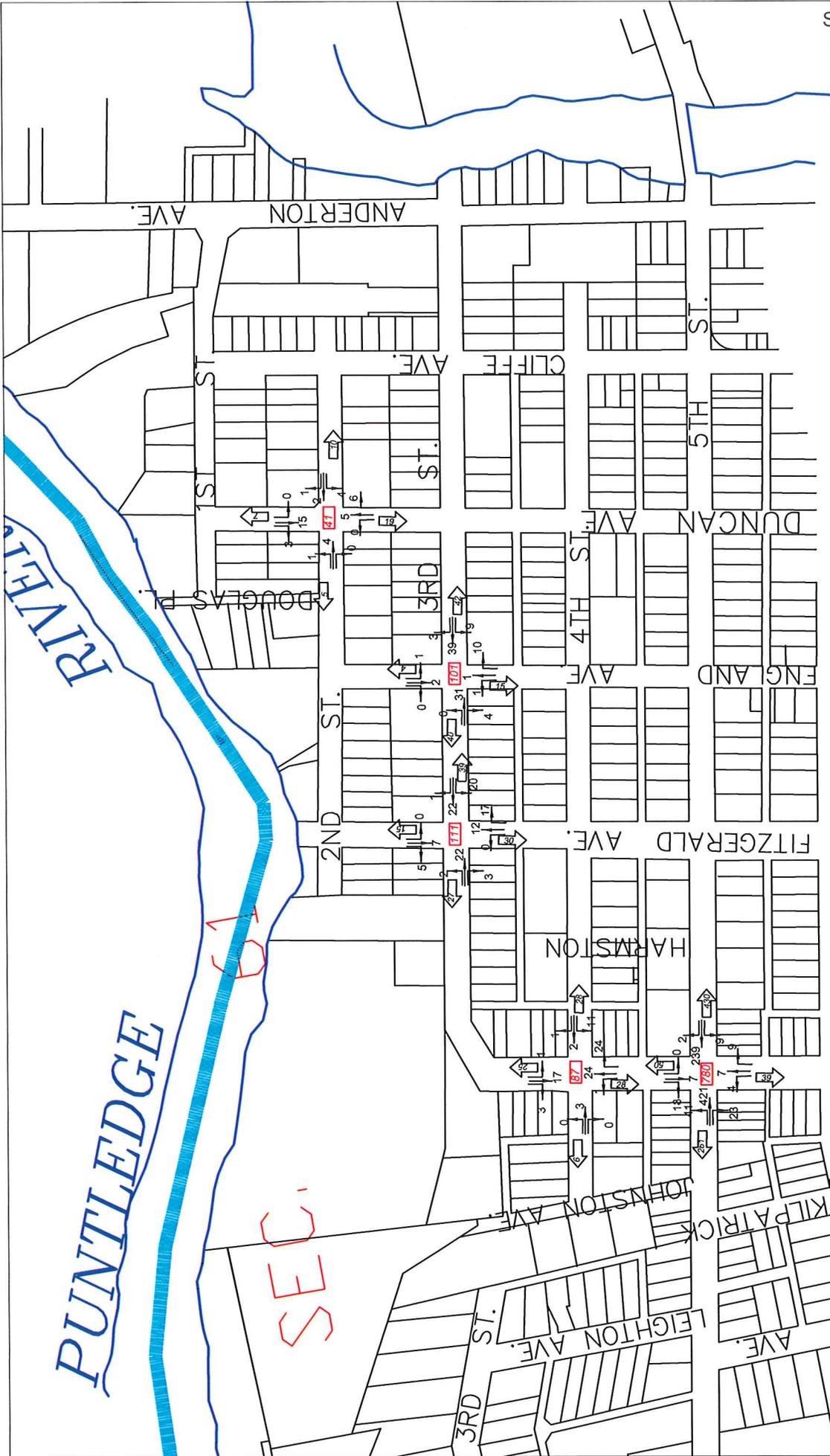
CITY OF COURTENAY COMMUNITY
TRAFFIC CALMING PROGRAM
WEEKDAY AM PEAK HOURLY VOLUMES
8:00 AM - 9:00 AM March / 2005

LEGEND	
PEAK VOLUME THRU INTERSECTION	1966
PEAK VOLUME DEPARTING	
PEAK VOLUME ENTERING - EACH MOVEMENT	

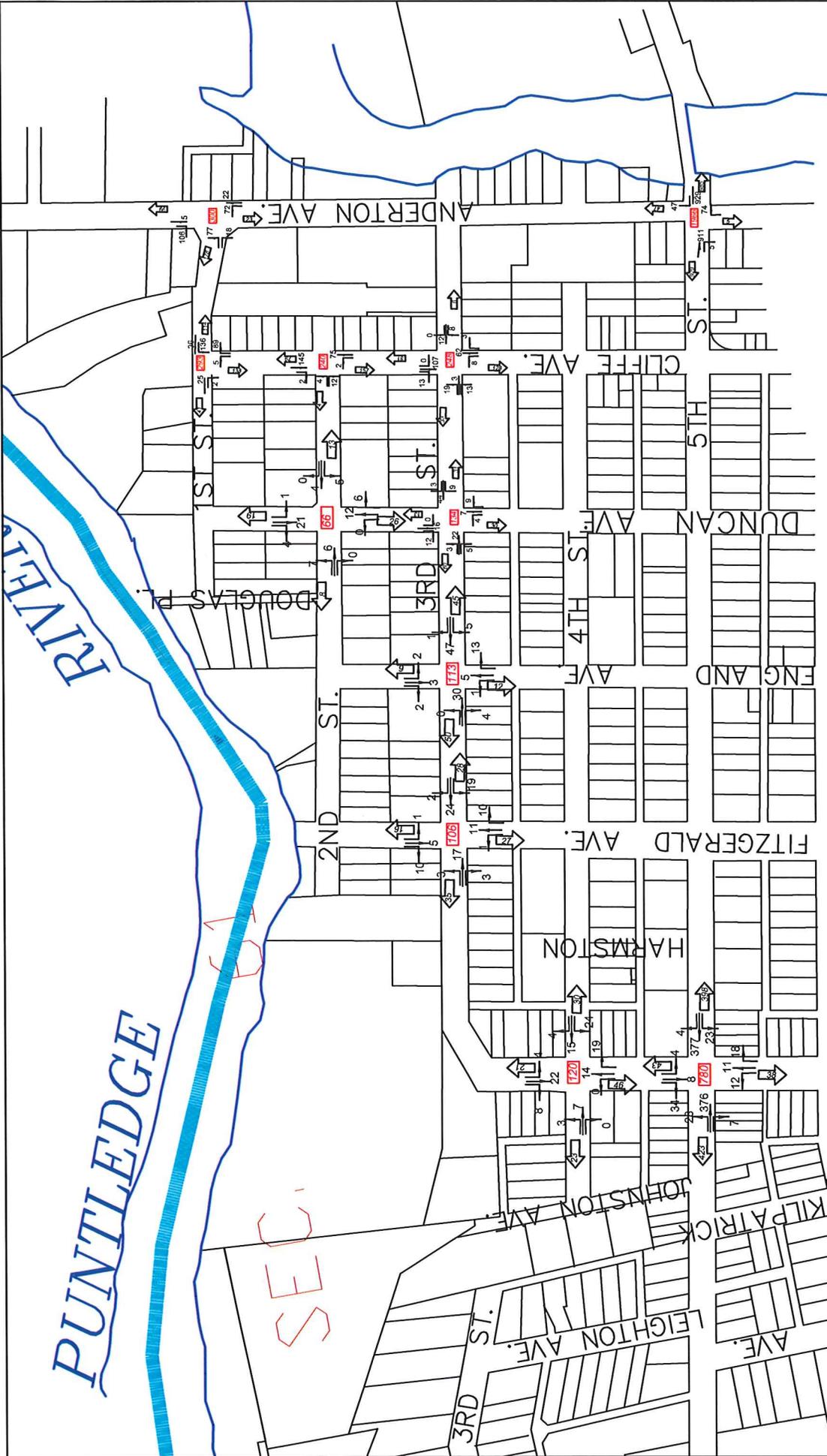


CITY OF COURTENAY COMMUNITY
TRAFFIC CALMING PROGRAM
WEEKDAY PM PEAK HOURLY VOLUMES
2:30 PM - 3:30 PM March / 2005

LEGEND	
PEAK VOLUME THRU INTERSECTION	1966
PEAK VOLUME DEPARTING	985 →
PEAK VOLUME ENTERING - EACH MOVEMENT	→ 911



CITY OF COURTENAY COMMUNITY
 TRAFFIC CALMING PROGRAM
 WEEKDAY AM PEAK HOURLY VOLUMES
 8:00 AM - 9:00 AM APRIL/2005

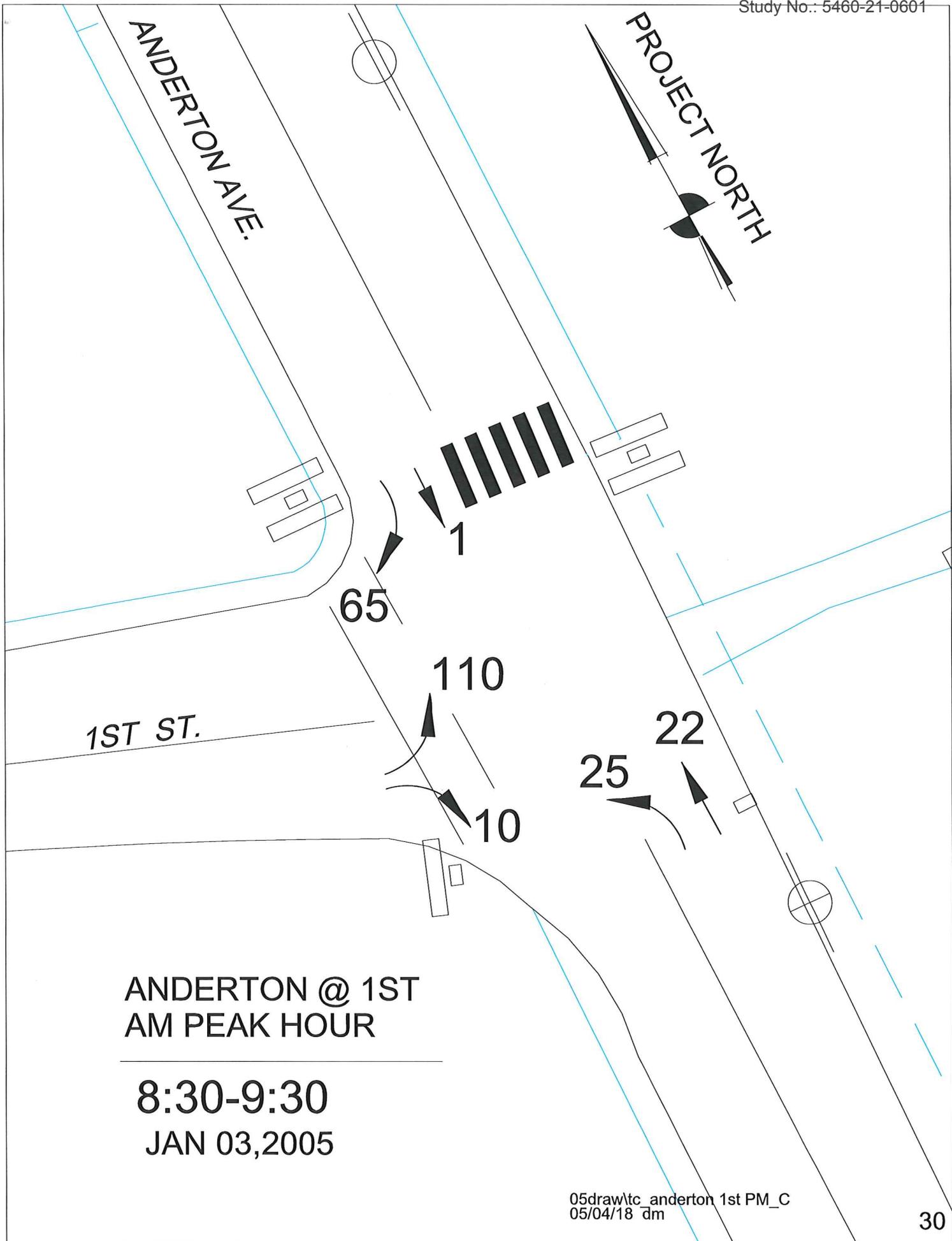


CITY OF COURTENAY COMMUNITY
TRAFFIC CALMING PROGRAM

WEEKDAY PM PEAK HOURLY VOLUMES
2:30 PM - 3:30PM

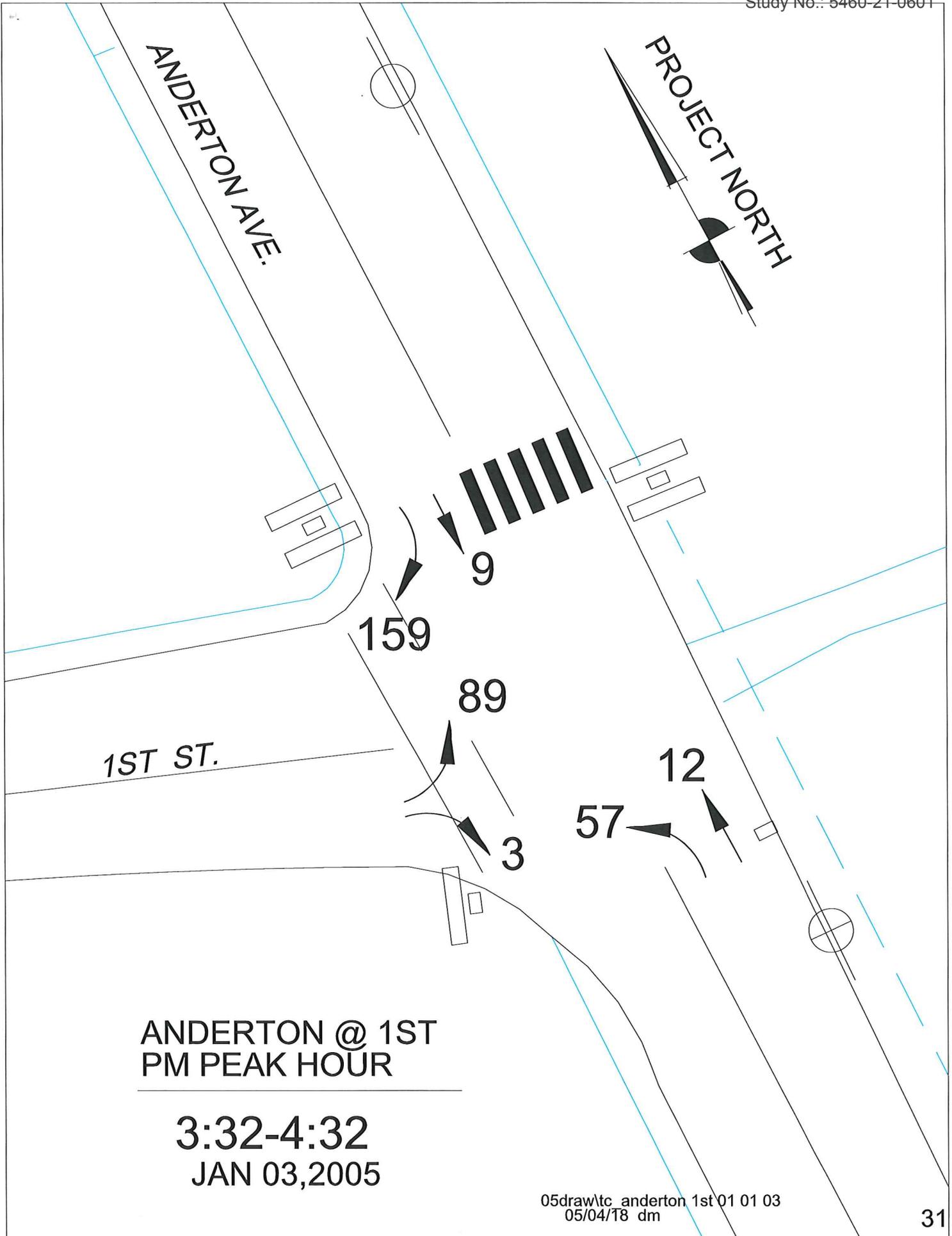
LEGEND

- PEAK VOLUME THRU INTERSECTION
- PEAK VOLUME DEPARTING
- PEAK VOLUME ENTERING - EACH MOVEMENT



ANDERTON @ 1ST
AM PEAK HOUR

8:30-9:30
JAN 03, 2005



ANDERTON @ 1ST
PM PEAK HOUR

3:32-4:32
JAN 03, 2005

Motor Vehicle Accident Stats 2000 - 2004

RCMP		
Location	Date	Injuries
3rd - Fitzgerald	00/03/13	no injury information
3rd - Fitzgerald	00/03/16	available
3rd - Fitzgerald	00/03/16	
1st - Anderton	00/06/23	
811 3rd St (3rd - Leighton)	00/09/10	
420 A 3rd (3rd - England)	01/02/05	
5th - Anderton	02/06/26	
1st - Anderton	02/07/22	
5th - Anderton	02/08/31	
3rd - Cliffe	02/11/02	
5th - Anderton	02/12/07	
1st - Cliffe	03/07/12	
374 3rd (By E/N RW)	03/09/04	
5th - Anderton	03/12/10	
3rd - Fitzgerald	04/11/26	↓

ICBC		
Location	Date	Injuries
1st - Anderton	2000	none
3rd - Cliffe	2000	none
3rd - Fitzgerald (3)	2000	2 injured
5th - Anderton (2)	2000	1 injured
3rd - Cliffe	2000	none
5th - Anderton	2001	none
1st - Anderton (2)	2002	1 injured
5th - Anderton (2)	2002	2 injured
1st - Cliffe	2003	none
1st - Cliffe	2003	none
3rd - Fitzgerald	2003	none
3rd - Fitzgerald	2003	none

GEN-95 (3/00)

13160 - 88th Avenue
Surrey BC
Canada V3W 3K3

Tel 604 596 0391
Fax 604 596 8853



McElhanney



Fax Transmittal

DATE	DESTINATION FAX NO	NO OF PAGES (INCL THIS PAGE)	FILE
April 7, 2005		2	2211-46574-0
TO	FROM		
Ian Whitehead	José Pinto		
COMPANY	ORIGINALS TO BE:		
McElhanney	<input type="checkbox"/> Filed <input type="checkbox"/> Mailed <input type="checkbox"/> Couriered		
CITY	OTHER (SPECIFY)		
Courtenay			
MESSAGE			

Re: River Glen Strata Development - Courtenay

Table 1 provides an estimate of AM, PM and weekday trip generation from the proposed River Glen townhouse subdivision, located at the north end of Anderton Avenue in Courtenay.

TABLE 1: Trip Generation for Townhouse Units

Strata Phase	Total Units	AM Peak Hour (vph)			PM Peak Hour (vph)			Weekday (vpd)		
		Trip rate = 0.44 trips/du			Trip rate = 0.52 trips/du			Trip rate = 5.86 trips/du		
		Total	In 17%	Out 83%	Total	In 67%	Out 33%	Total	In 50%	Out 50%
1	6	3	0	3	3	2	1	35	18	17
2	12	5	1	4	6	4	2	70	35	35
3	18	8	1	7	9	6	3	105	53	52
4	24	11	2	9	12	8	4	141	71	70
5	30	13	2	11	16	10	6	176	88	88
6	96	42	7	35	50	34	16	562	281	281

Development trips would be roughly distributed onto the road network as indicated on the attached diagram.

In terms of impact, the maximum hourly increase in traffic would occur at build-out (at completion of Strata Phase 6) during the PM peak hour, when 50 vehicles would be added to the road network, representing an average of less than one vehicle per minute. This volume of traffic can be absorbed by a collector/arterial facility. Furthermore, the maximum impact would only occur for a short section along 1st Street and Cliff Avenue. Beyond this section, traffic will branch out into various streets, thereby rendering negligible the traffic impact due to this development.

José

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3rd Street Volumes West Bound

**TRANSTECH DATA SERVICES
VEHICLE CLASSIFICATION SURVEYS**

LOCATION: Third Street between England and Fitzgerald
FILE: Third.xls
DIRECTION: Westbound

HOURLY VOLUMES BY DIRECTION

HOURLY	Sat 20/06/2005	Sun 21/06/2005	Mon 22/06/2005	Tue 23/06/2005	Wed 24/06/2005	Thu 25/06/2005	Fri 26/06/2005
0 - 1	3	7	2	2	1	1	1
1 - 2	1	4	0	0	1	0	1
2 - 3	3	2	0	1	2	0	0
3 - 4	2	2	0	0	0	0	0
4 - 5	1	0	0	0	0	1	0
5 - 6	1	1	2	1	2	1	3
6 - 7	2	1	2	1	4	3	4
7 - 8	9	6	16	13	15	11	12
8 - 9	9	20	30	32	37	34	34
9 - 10	25	26	30	18	23	30	25
10 - 11	32	24	31	14	33	30	26
11 - 12	64	23	34	37	32	35	45
12 - 13	52	26	28	25	36	23	34
13 - 14	32	26	43	42	37	30	38
14 - 15	38	18	42	34	40	41	41
15 - 16	29	23	42	53	47	45	41
16 - 17	33	28	56	46	43	38	47
17 - 18	29	12	32	49	39	44	39
18 - 19	19	20	18	17	22	29	30
19 - 20	9	15	17	19	21	12	28
20 - 21	16	6	20	14	7	17	17
21 - 22	6	15	19	11	19	17	11
22 - 23	11	2	9	3	7	4	15
23 - 24	9	4	5	7	1	3	4
12 Hour	371	252	402	380	404	390	412
16 Hour	404	289	460	425	455	439	472
18 Hour	424	295	474	435	463	446	491
24 Hour	435	311	478	439	469	449	496

Average Daily Westbound Vehicles / Day = 440

3rd Street Volumes East Bound

**TRANSTECH DATA SERVICES
VEHICLE CLASSIFICATION SURVEYS**

LOCATION: Third Street between England and Fitzgerald
FILE: Third.xls
DIRECTION: Eastbound

HOURLY VOLUMES BY DIRECTION

HOURLY	Sat 20/06/2005	Sun 21/06/2005	Mon 22/06/2005	Tue 23/06/2005	Wed 24/06/2005	Thu 25/06/2005	Fri 26/06/2005
0 - 1	0	2	1	0	4	1	2
1 - 2	2	0	0	0	1	0	0
2 - 3	1	2	0	0	0	0	0
3 - 4	1	1	1	0	0	2	0
4 - 5	1	1	2	0	3	2	1
5 - 6	1	0	1	2	0	2	2
6 - 7	2	0	3	7	8	6	6
7 - 8	10	9	12	17	16	10	17
8 - 9	23	21	42	36	30	43	39
9 - 10	32	25	40	37	41	23	28
10 - 11	20	26	22	31	26	31	22
11 - 12	36	26	35	32	31	29	37
12 - 13	34	38	39	38	46	36	32
13 - 14	31	30	30	27	20	29	33
14 - 15	34	26	37	35	26	31	25
15 - 16	25	18	27	28	33	30	38
16 - 17	35	25	51	39	43	42	43
17 - 18	30	14	31	36	35	35	33
18 - 19	40	19	14	29	35	29	33
19 - 20	14	14	16	16	16	15	19
20 - 21	14	7	19	12	21	22	17
21 - 22	4	7	13	14	16	9	20
22 - 23	5	5	3	3	2	8	18
23 - 24	3	3	1	1	2	1	4
12 Hour	350	277	380	385	382	368	380
16 Hour	384	305	431	434	443	420	442
18 Hour	392	313	435	438	447	429	464
24 Hour	398	319	440	440	455	436	469

Average Daily Eastbound Vehicles / Day = 422

West-Bound Speed

DATE	END TIME	SPEEDS													TOTAL
		0 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	> 80		
050610	0830	0	0	0	2	2	2	2	0	0	0	0	0	8	
050610	0845	2	0	0	4	2	1	2	0	0	0	0	0	11	
050610	0900	1	0	2	1	2	0	0	0	0	0	0	0	6	
050610	0915	1	1	2	0	0	0	0	0	0	0	0	0	4	
050610	0930	1	0	1	3	1	1	0	0	0	0	0	0	7	
050610	0945	0	1	1	1	4	0	0	0	0	0	0	0	7	
050610	1000	2	1	1	2	1	0	0	0	0	0	0	0	7	
050610	1015	1	0	1	1	0	1	0	0	0	0	0	0	4	
050610	1030	1	0	4	2	1	0	0	0	0	0	0	0	8	
050610	1045	1	0	3	3	2	1	1	0	0	0	0	0	11	
050610	1100	1	1	0	0	1	0	0	0	0	0	0	0	3	
050610	1115	3	0	1	0	2	1	0	0	0	0	0	0	7	
050610	1130	3	2	4	3	0	1	0	0	0	0	0	0	13	
050610	1145	0	4	1	5	1	1	0	1	0	0	0	0	13	
050610	1200	2	3	2	1	1	3	0	0	0	0	0	0	12	
050610	1215	2	2	1	1	1	1	0	0	0	0	0	0	8	
050610	1230	0	0	1	6	2	1	0	0	0	0	0	0	10	
050610	1245	1	0	1	2	0	2	0	0	0	0	0	0	6	
050610	1300	1	2	3	2	0	2	0	0	0	0	0	0	10	
050610	1315	1	0	0	3	1	0	0	0	0	0	0	0	5	
050610	1330	0	2	2	2	2	1	0	0	0	0	0	0	9	
050610	1345	0	1	2	2	1	1	0	0	0	0	0	0	7	
050610	1400	4	4	3	1	2	2	1	0	0	0	0	0	17	
050610	1415	1	0	5	2	2	1	0	0	0	0	0	0	11	
050610	1430	0	0	1	1	4	2	1	1	0	0	0	0	10	
050610	1445	0	1	2	2	1	1	1	0	0	0	0	0	8	
050610	1500	0	3	1	4	1	2	1	0	0	0	0	0	12	
050610	1515	3	0	2	2	1	1	0	0	0	0	0	0	10	
050610	1530	1	1	2	2	2	2	3	0	0	0	0	0	13	
050610	1545	1	0	5	3	0	1	0	0	0	0	0	0	10	
050610	1600	2	1	0	2	1	0	1	1	0	0	0	0	8	
050610	1615	1	0	2	6	1	2	0	0	0	0	0	0	12	
050610	1630	1	3	0	2	0	2	0	1	0	0	0	0	9	
050610	1645	0	0	3	5	2	0	0	0	0	0	0	0	10	
050610	1700	2	4	0	4	5	0	0	1	0	0	0	0	16	
050610	1715	1	0	4	1	4	1	0	0	0	0	1	0	12	
050610	1730	1	0	2	2	0	3	0	1	0	0	0	0	9	
050610	1745	0	1	3	2	2	1	0	0	0	0	0	0	9	
050610	1800	3	0	2	2	2	0	0	0	0	0	0	0	9	
050610	1815	0	0	2	0	0	2	0	0	0	0	0	0	4	
050610	1830	2	3	5	1	2	1	0	0	0	0	0	0	14	
050610	1845	2	0	2	2	3	0	0	0	0	0	0	0	9	
050610	1900	0	0	1	1	1	0	0	0	0	0	0	0	3	
050610	1915	2	0	2	1	0	1	0	0	0	0	0	0	6	
050610	1930	1	1	0	1	1	0	0	0	0	0	0	0	4	
050610	1945	0	0	3	1	2	0	2	0	1	0	0	0	9	
050610	2000	0	0	3	2	1	1	2	0	0	0	0	0	9	
050610	2015	1	0	0	2	2	1	0	1	0	0	0	0	7	
050610	2030	0	0	0	0	0	1	0	0	0	0	0	0	1	
050610	2045	0	0	0	1	1	0	0	0	0	0	0	0	2	
050610	2100	0	1	1	0	3	1	1	0	0	0	0	0	7	
050610	2115	1	0	0	0	0	0	0	0	0	0	0	0	1	
050610	2130	0	3	0	0	0	1	1	0	0	0	0	0	5	
050610	2145	1	0	0	0	1	0	1	0	0	0	0	0	3	
050610	2200	0	1	1	0	0	0	0	0	0	0	0	0	2	
050610	2215	0	1	4	0	0	0	0	0	0	0	0	0	5	
050610	2230	0	1	1	0	3	0	0	0	0	0	0	0	5	
050610	2245	0	0	0	0	1	1	0	0	0	0	0	0	2	
050610	2300	2	1	0	0	0	0	0	0	0	0	0	0	3	
050610	2315	0	0	0	0	1	0	0	0	0	0	0	0	1	
050610	2330	0	0	1	0	0	0	0	0	0	0	0	0	1	
050610	2345	0	0	0	0	0	0	0	1	0	0	0	0	1	
050610	2400	0	0	0	1	0	0	0	0	0	0	0	0	1	
TOTAL		320	373	520	667	584	341	175	59	22	11	4	1	3077	
PERCENT		10.4%	12.1%	16.9%	21.7%	19.0%	11.1%	5.7%	1.9%	0.7%	0.4%	0.1%	0.0%	100.0%	
ACCUM %		10.4%	22.5%	39.4%	61.1%	80.1%	91.2%	96.8%	98.8%	99.5%	99.8%	100.0%	100.0%		

SPEEDS													TOTAL	
0 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	> 80			

85th Percentile Speed = 52.2 km / h

East-Bound Speed

DATE	END TIME	SPEEDS												TOTAL	
		0 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	> 80		
050610	1415	1	0	0	0	2	1	0	0	0	0	0	0	0	4
050610	1430	0	0	3	2	2	0	0	0	0	0	0	0	0	7
050610	1445	1	0	1	0	3	0	0	0	0	0	0	0	0	5
050610	1500	1	0	1	2	3	1	0	0	1	0	0	0	0	9
050610	1515	1	0	4	2	2	0	1	0	0	0	0	0	0	10
050610	1530	3	3	0	3	4	1	0	0	0	0	0	0	0	14
050610	1545	1	0	1	4	0	0	1	0	0	0	0	0	0	7
050610	1600	0	1	3	1	2	0	0	0	0	0	0	0	0	7
050610	1615	0	1	2	3	2	0	1	0	0	0	0	0	0	9
050610	1630	1	0	3	3	3	1	0	0	0	0	0	0	0	11
050610	1645	3	1	1	2	3	1	0	0	0	0	0	0	0	11
050610	1700	1	2	2	3	3	0	1	0	0	0	0	0	0	12
050610	1715	1	0	1	3	2	0	1	1	0	0	0	0	0	9
050610	1730	1	0	0	1	2	1	0	0	0	0	0	0	0	5
050610	1745	1	0	2	1	0	1	0	0	0	0	0	0	0	5
050610	1800	2	0	5	3	4	0	0	0	0	0	0	0	0	14
050610	1815	1	1	2	3	3	0	1	0	0	0	0	0	0	11
050610	1830	2	1	0	4	2	1	0	0	0	0	0	0	0	10
050610	1845	2	1	1	1	2	0	0	0	0	0	0	0	0	7
050610	1900	1	1	1	2	0	0	0	0	0	0	0	0	0	5
050610	1915	0	2	1	0	1	0	0	0	0	0	0	0	0	4
050610	1930	0	0	2	3	0	0	0	0	0	0	0	0	0	5
050610	1945	1	0	1	2	2	1	0	0	0	0	0	0	0	7
050610	2000	1	0	1	0	1	0	0	0	0	0	0	0	0	3
050610	2015	0	1	3	2	1	1	0	0	0	0	0	0	0	8
050610	2030	0	0	0	0	2	0	0	0	0	0	0	0	0	2
050610	2045	0	0	3	1	0	0	0	0	0	0	0	0	0	4
050610	2100	1	0	0	0	1	0	1	0	0	0	0	0	0	3
050610	2115	0	0	0	3	0	1	0	0	0	0	0	0	0	4
050610	2130	2	1	1	3	1	0	0	0	0	0	0	0	0	8
050610	2145	0	1	0	1	1	0	1	0	0	0	0	0	0	4
050610	2200	0	1	2	0	0	0	0	1	0	0	0	0	0	4
050610	2215	2	2	1	1	0	1	0	0	0	0	0	0	0	7
050610	2230	0	0	1	0	0	1	0	0	0	0	0	0	0	2
050610	2245	0	0	2	0	1	0	1	0	0	0	0	0	0	4
050610	2300	0	0	1	1	2	1	0	0	0	0	0	0	0	5
050610	2315	0	0	1	0	0	0	0	0	0	0	0	0	0	1
050610	2330	0	0	0	0	0	0	0	0	0	0	0	0	0	0
050610	2345	1	0	0	0	0	0	0	0	0	0	0	0	0	1
050610	2400	0	0	0	0	0	1	0	0	0	1	0	0	0	2
TOTAL		401	335	614	687	560	252	80	20	7	1	0	0	0	2957
PERCENT		13.6%	11.3%	20.8%	23.2%	18.9%	8.5%	2.7%	0.7%	0.2%	0.0%	0.0%	0.0%	0.0%	100.0%
ACCUM %		13.6%	24.9%	45.7%	68.9%	87.8%	96.3%	99.1%	99.7%	100.0%	100.0%	100.0%	100.0%	100.0%	

SPEEDS												TOTAL
0 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	> 80	

85th Percentile Speed = 49.0 km / h