

November 13 2008

4509.04

Mr. Rob Siddoo
Siddoo Holdings
105 – 2277 West 2nd Avenue
Vancouver BC
V6K 1H8

Dear Mr. Siddoo:

**Re: Transportation Assessment: 1030 Denman Street,
Residential Conversion, Vancouver BC**

*Transportation Planners
and Engineers*

Bunt & Associates has been commissioned by Siddoo Holdings and Brook + Associates to prepare a Transportation Assessment to support the proposed conversion of 1030 Denman Street from hotel and conference to residential and office use. Other uses within the building (fitness, retail, etc.) are unaffected by the proposal.

This letter assesses the effect of the conversion in terms of traffic, parking and loading. Particular focus is given to existing operations and parameters of the site, and how the planned changes can be accommodated.

In reviewing the letter, it is worth bearing in mind that the hotel / conference facility formerly operated successfully as residential and is now being converted back to this format.

DEVELOPMENT PLAN

The development is located on Comox Street, Vancouver, with frontages also on Denman Street and Nelson Street. It is indicated at **Exhibit 1** and currently consists of:

- 269 guest suites;
- 3,274m² conference space (approx.);
- 1,858m² fitness space (approx.);
- 4,562m² retail (including 901m² restaurant space);
- 316 parking stalls (84 accessed from Nelson Street, 232 accessed from Comox Street on two levels);
- 3 dedicated off street loading bays

It is planned to convert the hotel / conference centre into rental suites along with a small amount of office space as set out below.

- 314 rental units at a total of 21,869m²;
- 2,206m² office space;
- 354 parking stalls are planned (95 accessed from Nelson Street, 259 accessed from Comox Street).

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All other uses within the building (retail, fitness) will remain in their present format. **Exhibit 2** shows the site plan of the proposed conversion.

Conversion of the conference space is currently planned to be about one half office and one half residential lobby / communal area. Guest suites would be converted into rental units and the removal of a service elevator is expected to increase the number of units available (over the current number of hotel suites). Average size of rental units is expected to be approximately 56m².

Two parkades serve the building. The smaller one of the two is accessed from Nelson Street and is one level with **84 stalls**, while the larger one is accessed from Comox Street (adjacent to the main hotel entrance) and has two levels with a total of **232 stalls**. In total, the site has 316 spaces

Observations show that the Nelson Street parkade is typically used by visitors to the retail, while the Comox Street parkade is used for the hotel and conference facilities. With the removal of these uses, the Comox Street parkade will be used exclusively by residents. In addition, through the removal of some infrastructure, the capacity of the two parkades is planned to increase from 316 stalls to a total of 354 stalls.

SURVEYS

Traffic and parking surveys were carried out in order to establish current conditions in and around the site along with data collected from similar types of development to that planned to assess future projections. **Table 1** indicates the surveys carried out and the purpose they serve.

Table 1: Surveys

Survey	Purpose
Intersection Counts at Denman St/ Nelson St and Denman St/ Comox Street: (6.30am - 9.30am and 4.00pm - 6.00pm on Wednesday 18 th June 2008 and 12.00pm – 4.00pm on Saturday 21 st June 2008)	Establish background traffic conditions on road network, including establishing the AM, PM and weekend peak hours.
Driveway Counts at the two parkade entrances (6.30am - 9.30am and 4.00pm - 6.00pm on Wednesday 18 th June 2008 and 12.00pm – 4.00pm on Saturday 21 st June 2008)	Establish existing trip rate from the current mix of uses. Data relating to conference use on the two days was obtained to provide some context.
Parking spot counts in the two parkades (Throughout the day during Wednesday 18 th June and Saturday 21 st June 2008)	Establish current parking demand throughout a weekday and weekend.
Comparative rental building driveway counts at two rental buildings in downtown Vancouver (7.00am - 9.00am and 4.00pm - 6.00pm on 24 th June 2008)	Establish trip rates of comparative rental buildings so as to better estimate the likely trip generation from the proposed conversion.
Rental building car ownership from five comparative rental buildings in downtown Vancouver was obtained from the Insurance Corporation of British Columbia	Establish likely car ownership rates for the rental units.
Survey of the existing loading activities for the development. (7am to 5pm on August 27 th)	Demonstrate the ability of the loading arrangements to accommodate current demands.

TRAFFIC REVIEW

Current traffic conditions

Survey data shows that Denman Street's intersections at Comox Street and Nelson Street carry about 1,500 to 1,600 vehicles during the weekday and Saturday peak hour periods. Some minor delays to traffic at these intersections on Denman Street were observed at peak times given the level of pedestrian and vehicular activities.

These observations are typical for a street of this nature and indeed, lower traffic speeds (due to minor delays) have a positive benefit in dissuading through traffic and more importantly providing a comfortable environment for pedestrians. In essence, Denman Street functions as a 'main street' environment where the interaction of pedestrians and vehicles play a significant role in its vibrancy and vitality.

The hotel parkade generates about **60 to 80 vehicle trips** during the weekday and Saturday peak hour periods. At the time of the survey, the hotel was 90% full, while the conference activity level was at 250 registered delegates, and thus represent peak conditions in one of the main seasonal months (June).

Existing traffic flows for the weekday AM / PM and Saturday peak periods are summarized at **Appendix A**.

Comparison of existing and estimated future trip generation

Table 2 presents the estimated trip generation for the proposed conversion of the existing hotel facilities use to rental apartment units.

Table 2: Estimated Trip Generation for Proposed Conversion

Use	Qty	Time Period	Trip Rate			# of Trips		
			In	Out	Total	In	Out	Total
Rental Apartment	314 units	Morning	0.07	0.10	0.17	22	31	53
		Afternoon	0.10	0.06	0.16	31	19	50
		Saturday	0.08	0.05	0.13	25	16	41
Office Space	23,741 sq ft	Morning	1.36	0.19	1.55	32	5	37
		Afternoon	0.25	1.24	1.49	6	29	35
		Saturday	0.22	0.19	0.41	5	5	10
TOTAL	N/A	Morning	-	-	-	54	36	90
		Afternoon	-	-	-	37	48	85
		Saturday	-	-	-	30	21	51

Trip rates for rental apartments are based on data collected from similar buildings in the downtown area. In fact, Bunt & Associates used similar rates in previous reports to the city, including for the Woodward's Building.

Office trip rates are based on ITE data and, as such, are likely to over predict the magnitude of vehicle movements by about 40% given parking levels for this use are more than 40% below the sites surveyed in the manual (most are auto orientated).

Evidently from Table 2, the proposed conversion of the hotel / conference centre is likely to generate somewhere between 50 and 90 vehicle trips during the peak hour periods. This is comparable with the existing demand, i.e. between 60 and 80 trips, and hence the change of use is not expected to result in a material alteration to vehicle movements on the adjacent streets.

Trip distribution from proposed conversion

Trip distribution patterns for the proposed conversion are expected to follow the similar patterns to those observed for the existing uses.

Retail vehicle movements are expected to continue to access the site at the Nelson Street parkade entrance, while the rental apartment / office movements would assess the site from the Comox Street entrance.

Distribution patterns for the development traffic flows are included at **Appendix A**. The office rate has been slightly reduced to compensate for the ITE over estimated rate.

Net effect of development traffic on study intersections

Before considering whether to undertake capacity analysis for the signalized intersections on Denman Street at Nelson Street and Comox Street, it is important to first understand the percentage effect of the development's traffic generation at these locations.

Based on the simplistic assumption that the rental apartment trips represent a net increase in traffic (which they obviously do not), Tables 3 to 5 indicate the percentage changes at these intersections, covering the weekday morning / afternoon and Saturday peak hour periods.

Table 3: Effect of Development Traffic – Weekday Morning Peak

Intersection	Existing	Additional Trips from Dev	%
Denman & Nelson	1650	15	0.9%
Denman & Comox	1543	26	1.7%

Table 4: Effect of Development Traffic – Weekday Afternoon Peak

Intersection	Existing	Additional Trips from Dev	%
Denman & Nelson	1580	5	0.3%
Denman & Comox	1607	13	0.8%

Table 5: Effect of Development Traffic – Saturday Afternoon Peak

Intersection	Existing	Additional Trips from Dev	%
Denman & Nelson	1624	4	0.2%
Denman & Comox	1532	7	0.5%

Given these nominal changes, the proposed conversion would have no material effect on these intersections operational performance. As such, it is therefore not considered necessary to undertake any capacity analysis to evaluate the development's effect on the local street network.

PARKING REVIEW

The development is subject to a rezoning application and as such this section of the letter focuses on appropriate parking provision for the development. As part of this, it is important to first assess parking demand for the existing uses and compare this with the existing parking bylaw. The City of Vancouver have provided suggested new parking and loading rates (in essence a draft bylaw for this development) for use when considering the future use of the site. This document is entitled ‘Coast Plaza Parking and Loading Requirements (CPPLR)’. Given this, the below assessment for parking considers the appropriateness of these suggested rates, as well as the City’s existing bylaw.

Existing Uses and observed parking rates

Parking accumulation counts were conducted for different time periods to look at the demand characteristics for the existing uses at the development site.

Peak parking demand for the two car parks was observed as follows:

- Comox St / Hotel - 137 spaces (out of 232) at 59% occupancy
- Nelson St / Retail - 52 spaces (out of 84) at 62% occupancy

These peak levels were observed at 11:00 am on the weekday, where in total 189 stalls were occupied. At the time of the survey, the hotel was 90% full (typical for downtown hotels in June) and there were 250 delegates registered for conferences that day (representing a typical busy conference day).

The site is currently located in the C-5 commercial zone (City of Vancouver’s parking bylaw) and **Table 6** summarizes the bylaw requirement for the uses planned to be changed.

Table 6: C-5 Zoning Parking Requirements for Hotel / Conference Use

Use	Bylaw Clause(s)	Bylaw requirement
Hotel units	4.2.2.1	A minimum of one space for every dwelling unit and one space for every two sleeping or housekeeping units.
Conference space	4.2.4.1	A minimum of one space for each 18.6 square metres of floor area used for assembly purposes.

Based on these requirements, **Table 7** shows the required parking supply in the context of the existing provision and demand.

Table 7: C-5 Zoning Requirement Assessment for Hotel / Conference

Reference	Total	Difference from Bylaw
Bylaw (clauses 4.2.2.1 & 4.2.4.1)	445	100%
Existing Supply	232	52%
Actual Peak Demand	137	31%

Clearly this demonstrates that the C-5 parking bylaw requirement for the location is excessive.

Even though other uses within the building will remain the same, it is important however to provide a similar cross check on parking levels for these uses. This exercise is presented in **Table 8**.

Table 8: C-5 Zoning Requirement Assessment Retail

Reference	Total	Difference from Bylaw
Bylaw (Clause 4.3.2)	188	100%
Existing Supply	84	47%
Actual Peak Demand	52	28%

As with the hotel uses, this shows that the parking bylaw is inconsistent with the actual demands, and in this particular case by more than two-thirds less. Indeed with the remarking of the parkade, it is expected that the capacity can be increased to 95 spaces.

Based on the CPPLR, all non residential uses require one parking stall per 145m². Based on the site’s current uses, this would result in a requirement for 203 parking stalls. The current observed peak demand is 189 stalls, which is very close to the CPPLR requirement.

Observed Demand at Similar Residential Developments

ICBC car ownership data for similar rental units in downtown Vancouver indicates that a rate of 0.55 spaces per unit for rental apartments is probably appropriate. This would result in 173 parking stalls for the 314 proposed rental units.

Parking Requirement Based on ‘Coast Plaza Parking and Loading Requirements’ Rates

Table 9 shows the proposed parking supply for the development.

Table 9: Proposed Parking Supply

Nelson Street Parkade	95
Comox Street Parkade	259
Total	354

Table 9 shows that through some relining, 95 stalls are proposed at the Nelson Street Parkade and 259 at the Comox Street Parkade.

The CPPLR suggests a minimum of one parking stall per 140m² for residential use, or one stall per unit for units over 140m². (The development is not planning any units to be over 140m².) Residential visitor parking is suggested to be provided at a rate of 0.05 stalls per unit. In addition, the CPPLR requests car share stalls be provided at a rate of 0.025 per unit.

For all non residential uses, the CPPLR suggests a minimum rate of one stall per 145m².

Table 10 indicates the number of stalls that would be required under the CPPLR.

Table 10: Parking Stalls required under CPPLR

Use	Area (sq ft)	Area (sq m)	Min. parking rate	Max. parking rate	min. # stalls	max. # stalls
Residential*	235398	21869	1/140m ²	1/140m ² + 0.6	156	344
Residential Visitor	314 units	314 units	0.05/ unit	0.1/ unit	16	31
Office	23741	2206	1/145m ²	1/120m ²	15	18
Fitness Club	20000	1858	1/145m ²	1/120m ²	13	15
Other Retail	97652	9072	1/145m ²	1/120m ²	63	76
Total	376791	35005			263	485

Table 10 shows that the CPPLR requires between 156 and 344 stalls for residents. As mentioned previously, ICBC data suggests approximately 170 stalls should be provided. When considering all uses, the CPPLR suggests a total of between 263 and 485 stalls should be provided.

354 stalls are proposed to be provided, which is nearly 90 stalls more than the minimum suggested by the CPPLR.

Car Sharing

Table 11 indicates that the CPPLR suggests a total of eight vehicles and stalls for shared vehicles.

Table 11: Shared Vehicle Requirement

Use	Units	Rate	# Required
Residential	314	0.025/ unit	8

Requirement for shared vehicles is in addition to regular bylaw requirements

There are currently two Zip Car and two Co-operative Auto Network (CAN) vehicles located in the Nelson Street parkade available for general use. Both residents and employees of the development will have access to them should they wish. In addition to this six more CAN vehicles and three Zip Car vehicles are located within two blocks of the development. CAN and Zip Car maintain a suitable number of vehicles based on demand and membership in each area and as such are best placed to judge when additional vehicles are required. Their business model includes the cost of vehicles and they purchase them as required. Maintaining little used vehicles could impose extra costs on these organisations.

In the context of the planned rental apartments, the existing provision of four vehicles is equivalent to 1 per 70 units. This is more than ample when compared to places like San Francisco, which has a rate for new developments at 1 vehicle per 200 units¹.

The office element is too small to justify a vehicle, and moreover, the synergies between office and residential improve utilization as employees use vehicles more during the working day, while residents use them more in the evening and at weekends.

¹ In the case of San Francisco, the vehicles supplied for a new development are for exclusive use of residents of that building.

Notwithstanding the above, the developer is willing to consider providing one additional vehicle to support the rental units. This would give a total of five vehicles onsite and is considered adequate to serve the needs of the development.

Proposed Parking Provision

Table 12 summarises the proposed parking provision in the two parkades.

**Table 12: Proposed Parking Provision
Comox Street Parkade**

Use	Number of stalls
Residential	259
Total	259
Total Available	259

Nelson Street Parkade

Use	Number of stalls
Office, fitness, retail, residential visitor	87
Additional Shared Vehicle	1
Class A Loading	7
Total	95
Total Available	95

259 stalls are proposed to be provided for residents in the Comox Street Parkade. This is within the range of parking suggested in the CPPLR. In the Nelson Street Parkade, it is proposed that the office, fitness, retail and residential visitors can share 87 stalls between them. The surveys discussed previously showed a maximum of 52 stalls occupied at Nelson Street, indicating even the CPPLR rates overestimate the retail parking demand. If the CPPLR’s office rate of 15 stalls is added to the 52 observed to be in use, then 87 stalls will provide ample parking for the uses. In addition, differing times for peak parking for different uses mean that it is estimated that sufficient parking is provided for all the uses. For example, the retail and office peak parking periods are during the day, while residential visitor and fitness peaks are early and late evening.

The additional shared vehicle is planned to be located in the Nelson Street parkade next to the existing vehicles. This is consistent with best practice (and supported by the Cooperative Auto Network) where vehicles are grouped in pods, which are visible and accessible to the general public.

The provision of seven Class A Loading spaces is discussed in the next section.

LOADING

An assessment is first made on the existing loading arrangements for the building before consideration is given to how the planned change of use can be accommodated.

Currently three Class B off-street loading bays serve all the uses within the building (hotel, fitness, retail, etc.); however, one space accommodates a

cardboard compactor (associated with the hotel activities) and hence is used as a Class-A. Application of the bylaw would suggest the following loading spaces for the existing uses as shown in **Table 13**.

Table 13: Loading Assessment - Existing Uses

Use	Class A	Class B	Class C
Hotel	1	2	
Retail		4	1
Fitness		1	
All uses	1	7	1

Given this, there is a significant difference between what is currently provided and what the bylaw suggests. To understand this difference better, the actual demand for the loading area has been assessed from a survey conducted at the development on a typical weekday (7am to 5 pm). The main observations were:

- In total 23 vehicles accessed the loading area;
- All three loading spaces were only occupied for a 10-minute period in the day, i.e. 2% of the time during the survey;
- Typical duration of stay was 11 minutes; and,
- No issues were highlighted with access or queuing.

This demonstrates that a mixed use development can operate with about **one-third** of the spaces required under the bylaw.

Table 14 shows the loading requirement for the proposed uses using the City bylaw and newly proposed CPPLR.

Table 14: Loading Requirement for proposed uses

Use	Area (sq ft)	Area (sq m)	Class A requirement	Class B requirement	Class C requirement	Class A #	Class B #	Class C #
Residential	314 units	314 units	0.01 spaces/ unit up to 299. 0.008/ unit over 299.	2 up to 499 units	n/a	3	2	0
Office	23741	2206	1 space for between 1000 - 7500m2	1 space between 500 and 5000m2	n/a	1	1	0
Fitness Club	20000	1858	n/a	1/2800m2	Nothing under 2000m2	0	0	0
Other Retail	97652	9072	n/a	1 for first 465m2. 1 for next 1860m2. 1 per additional 2325m2.	Two spaces if more than 5000m2.	0	4	2
Total						4	7	2

Table 14 shows a requirement for four Class A, seven Class B and two Class C loading stalls.

As part of the development plans, it is proposed to increase loading in the following ways:

- Reconfigure loading bay to accommodate 2 Class B spaces and 1 Class C space (cardboard compactor will be removed);
- Add 1 Class B loading space between the rear service lane and the edge of the building, but within the property line.
- At the porte cochere, in front of the main hotel entrance on Comox Street, add 1 Class B loading space.

- Provide a total of seven Class A spaces in the Nelson Street Parkade.

The development plans would therefore have 4 Class B and 1 Class C spaces to support the existing and planned uses, a net increase of 1 Class B and 1 Class C. Given current observations, this is expected to be more than adequate to accommodate the shared demands for the existing and planned uses. **Exhibit 3** shows the configurations of the loading spaces. The increase in Class A provision is to partly compensate for the reduction in Class B spaces as related to the bylaw. These spaces will be located in the Nelson Street Parkade. Where the minimum height requirement for Class A spaces can be provided, it has been. However, as it is an existing structure, this will not be possible for all stalls.

BICYCLE PARKING

Table 15 indicates the required bicycle parking provision for the development.

Table 15: Required bicycle provision

Use	Area (sq ft)	Area (sq m)	Class A requirement	Class B Requirement	Class A #	Class B #
Residential	314 units	314 units	1.25/ unit	6 if over 20 units	393	6
Office	23741	2206	1/500m2	6 if over 2000m2	4	6
Fitness Club	20000	1858	1/ 250m2	6/500m2	7	24
Other Retail	97652	9072	1/500m2	6 if over 1000m2	18	6
Total					422	42

Table 15 shows a total of 422 Class A and 42 Class B stalls are required. It is proposed to provide the required number of stalls. The 422 Class A stalls will be provided at appropriate locations throughout the development. **Table 16** shows the proposed location of the Class B bicycle stalls.

Table 16: Proposed location of Class B Bicycle Stalls

Location	Number
In Fitness Centre Entrance	6
Between residential entrance at Fitness Centre	11
Entrance to mall off Denman Street	6
Nelson Street Parkade	19
Total	42
Total Required	42

The 11 stalls proposed on the Comox Street entrance will provide residential visitor and fitness centre cycle parking, along with the existing six cycle stands that the fitness centre already have. Some Class B provision can be accommodated at the entrance to the mall on Denman Street. The balance will be provided in the Nelson Street Parkade.

ACCESSIBILITY

The West End is a highly sustainable location due to the high density residential areas which support a great variety of services within walking distance. As a result, auto ownership and use is much lower than many other areas in Vancouver. In fact, auto use represents just 40% of all journeys in the downtown as a whole.

Rental buildings in downtown Vancouver also have an auto ownership rate of approximately 0.55 vehicles per unit and a trip rate of 0.17/ 0.16 trips per unit in the AM/ PM peak hour. Grocery shopping and other day-to-day services are available on Denman Street or within the Denman Place itself.

Frequent transit operates on Denman Street (approximately eight buses per hour during the day) as well services operate on nearby Davie Street, Robson Street and West Georgia Street.

Finally, as mentioned above, both the Cooperative Auto Network (CAN) and Zip Car operate in this area, offering a realistic alternative to owning a vehicle for many residents who only need a car on an occasional basis.

SUMMARY

Key findings for the development plans are as follows:

- The planned changes will result in the hotel / conference facility return to its former use, residential.
- Changes in vehicle movements are expected to be nominal and hence no operational effects are expected.
- Reconfiguring the existing parking layout in the hotel parkade will increase spaces from 232 to 259, while in the retail parkade it will increase from 84 to 95.
- Parking provision planned for the residential, office and existing uses is consistent with Bunt & Associates research and survey observations. It is also in line with bylaw requirements and within the range suggested by the CPPLR. Shared parking principles can successfully be used in the Nelson Street Parkade as the various uses having differing peak parking times and survey data suggests observed rates are lower than bylaw or CPPLR rates.
- One additional car-sharing vehicle is planned and it will complement the existing four vehicles located in the retail parkade and other shared use cars in the neighbourhood. This will provide a robust number of car-sharing vehicles appropriate to the development.
- Bicycle parking will comply with the City requirements.
- Existing loading demand is significantly lower than the bylaw requirement given the shared use of spaces for the different activities within the building. This is expected to continue under the development plans, but to provide some additional comfort, 2 additional loading spaces are planned (1 Class B and 1 Class C) as well as seven Class A spaces.

* * * * *

This letter represents our findings with regard to this project. If you have any queries please contact Peter Joyce or myself on the above number.

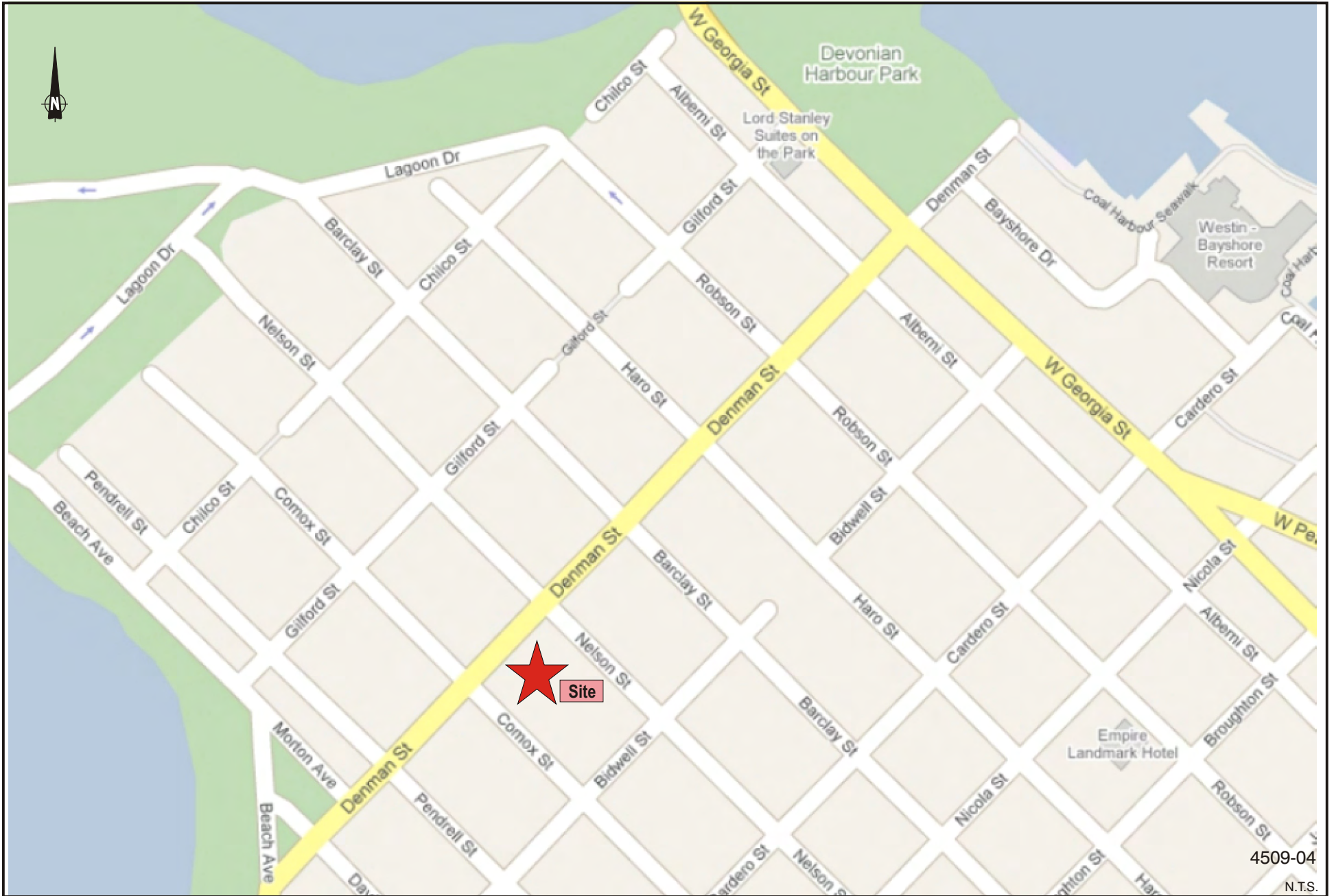
Yours truly,

BUNT & ASSOCIATES

A handwritten signature in black ink, appearing to read 'Tim Barton', with a large circular flourish at the end.

Tim Barton
Transportation Planner

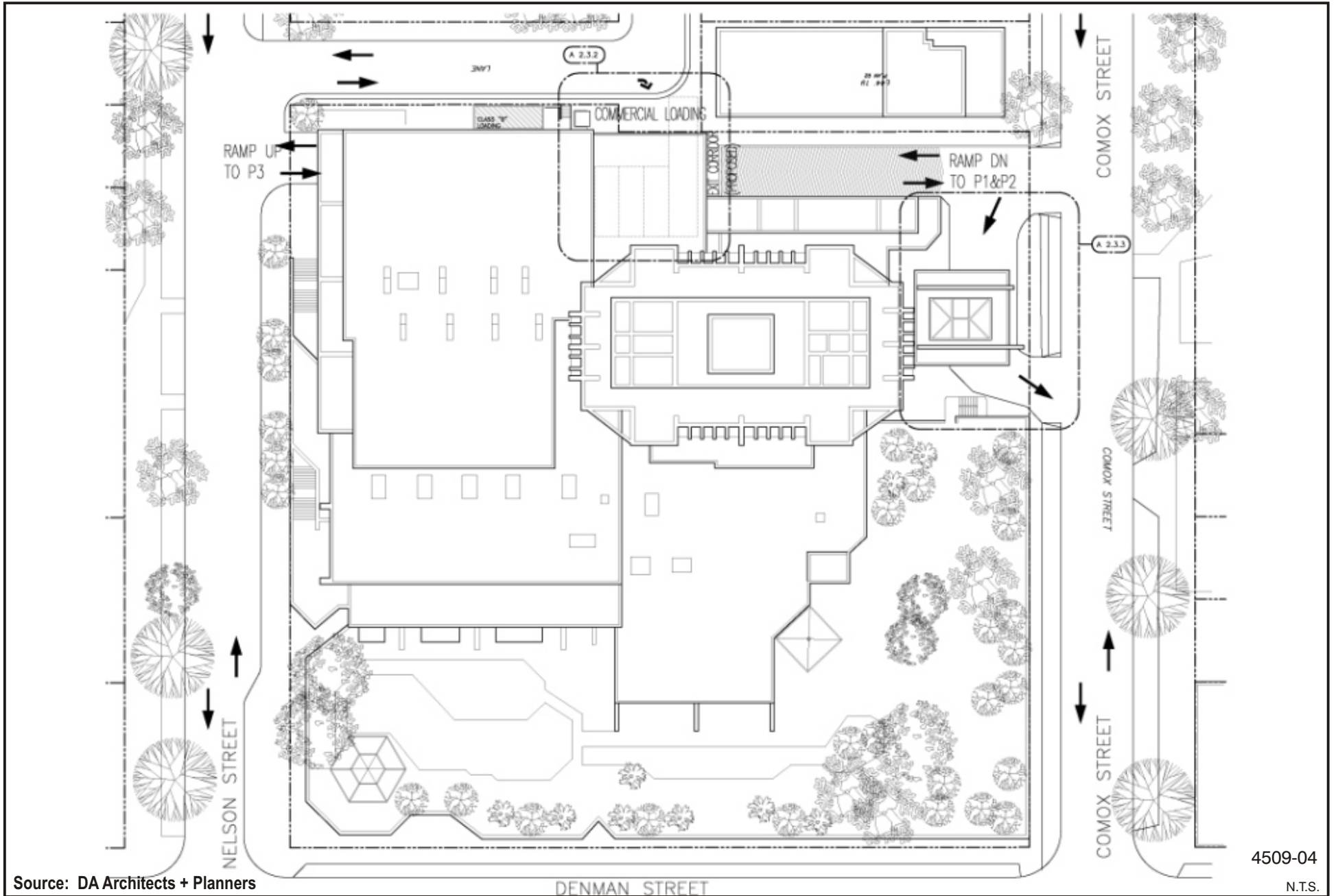
cc: Laurie Schmidt, Brook + Associates



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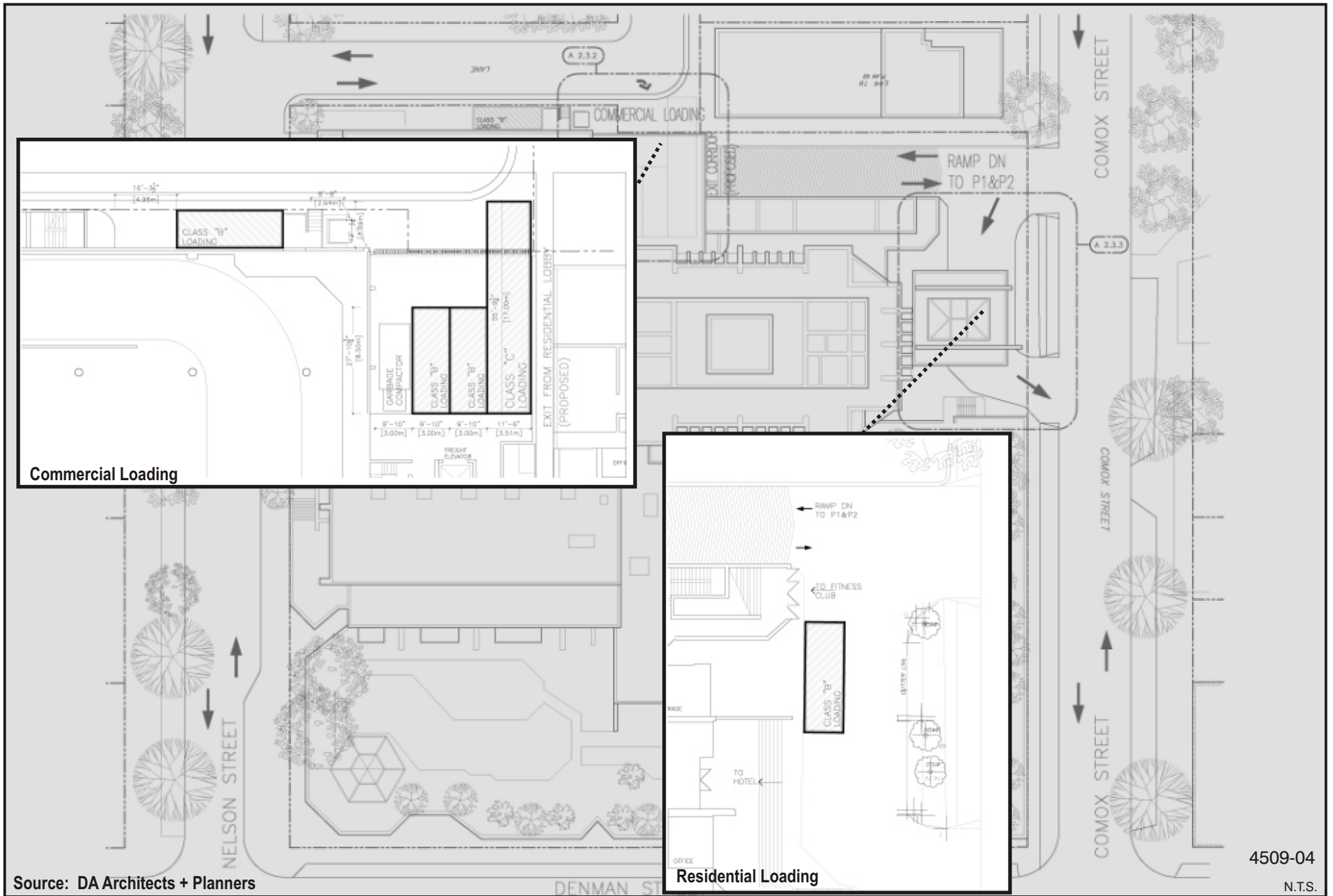
Site Location

1030 Denman Street, Residential Conversion, Vancouver BC



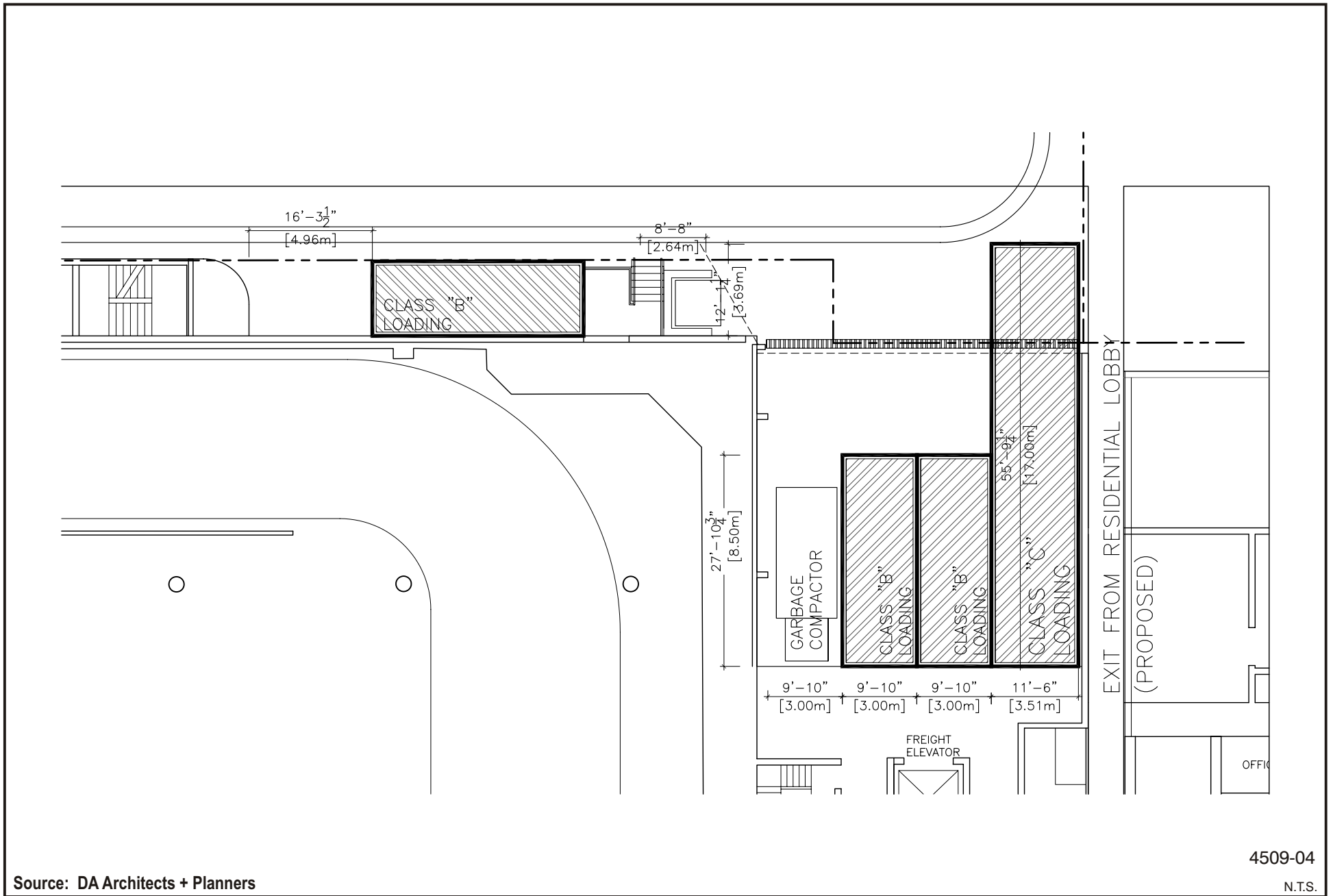
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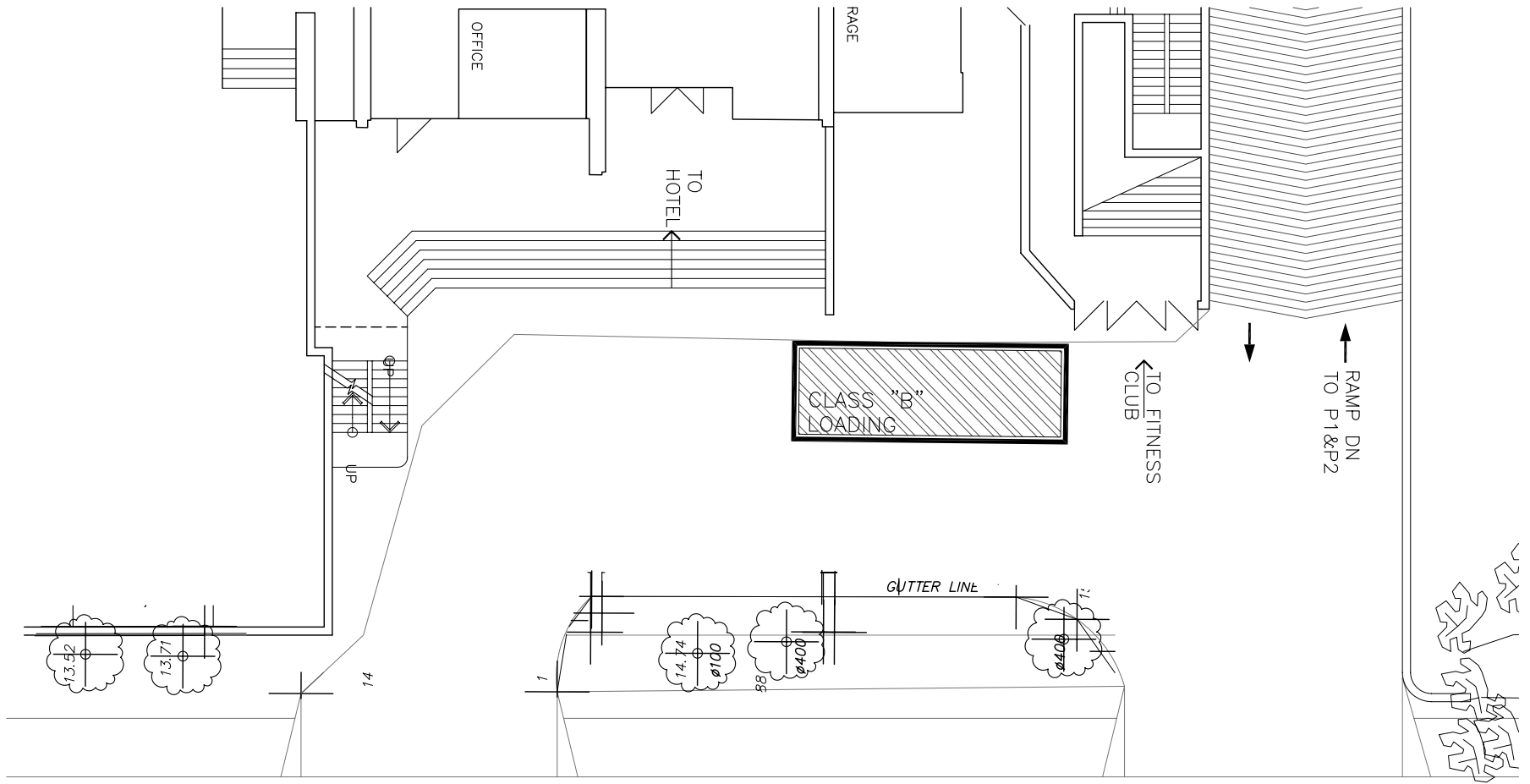
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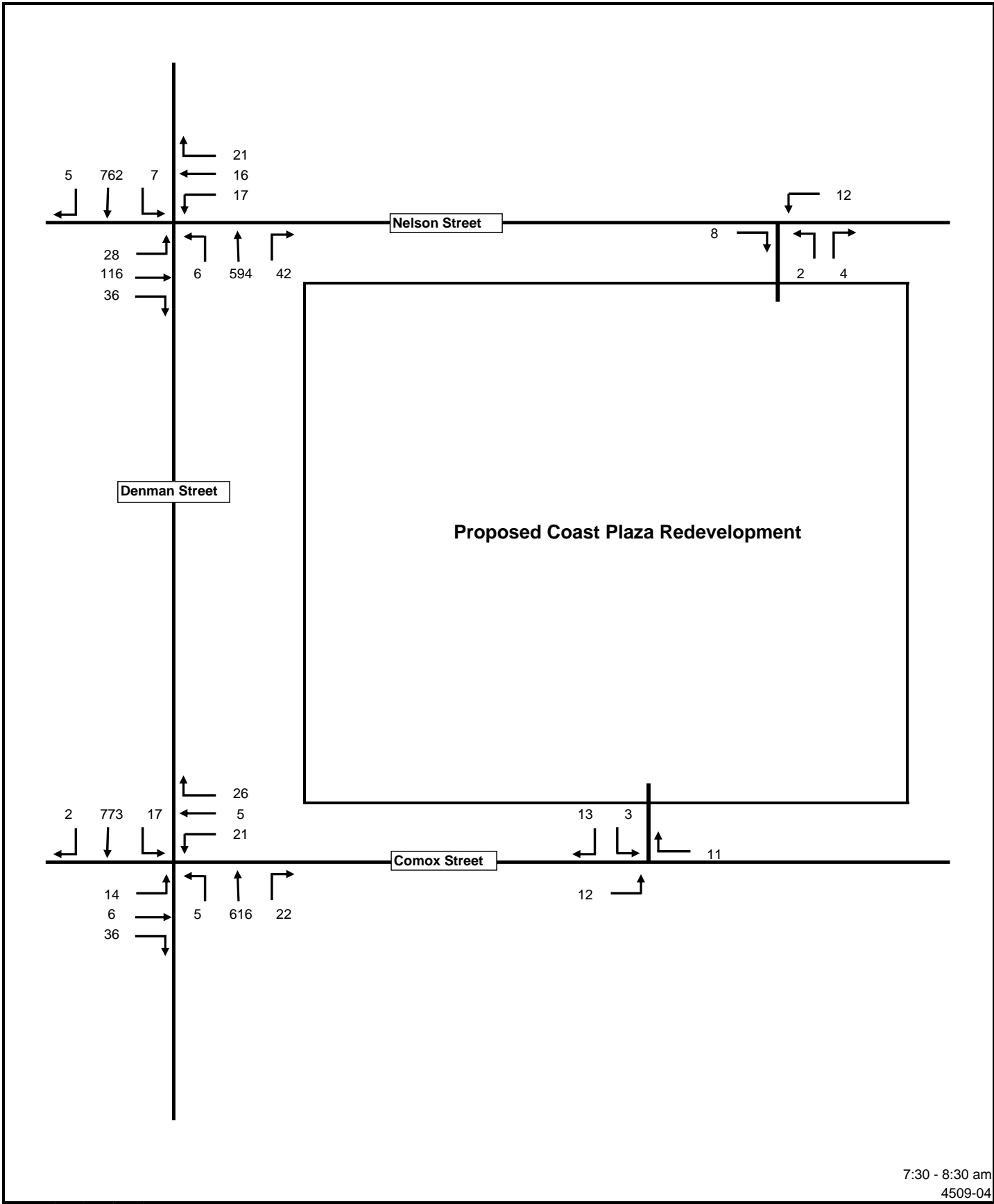


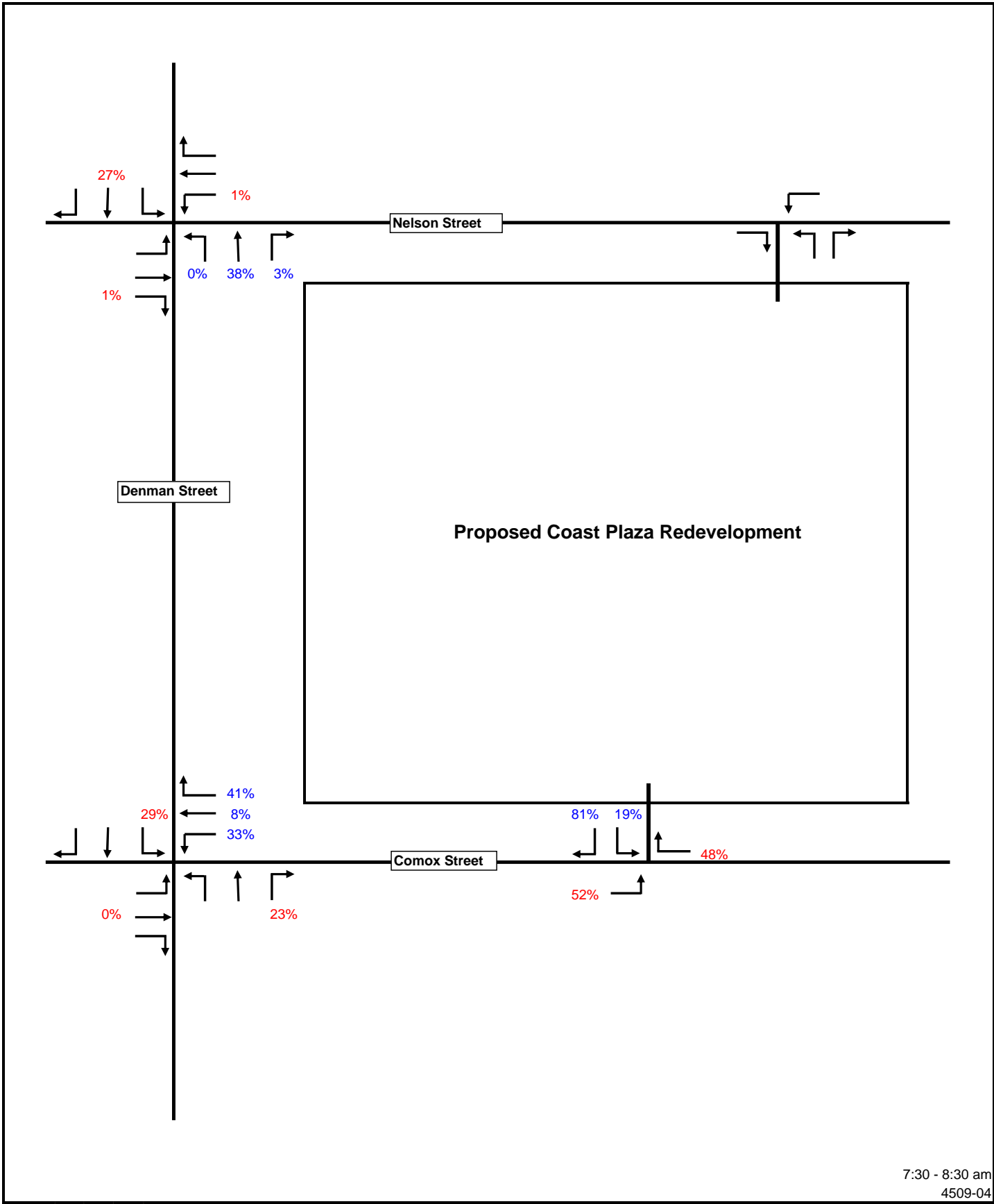
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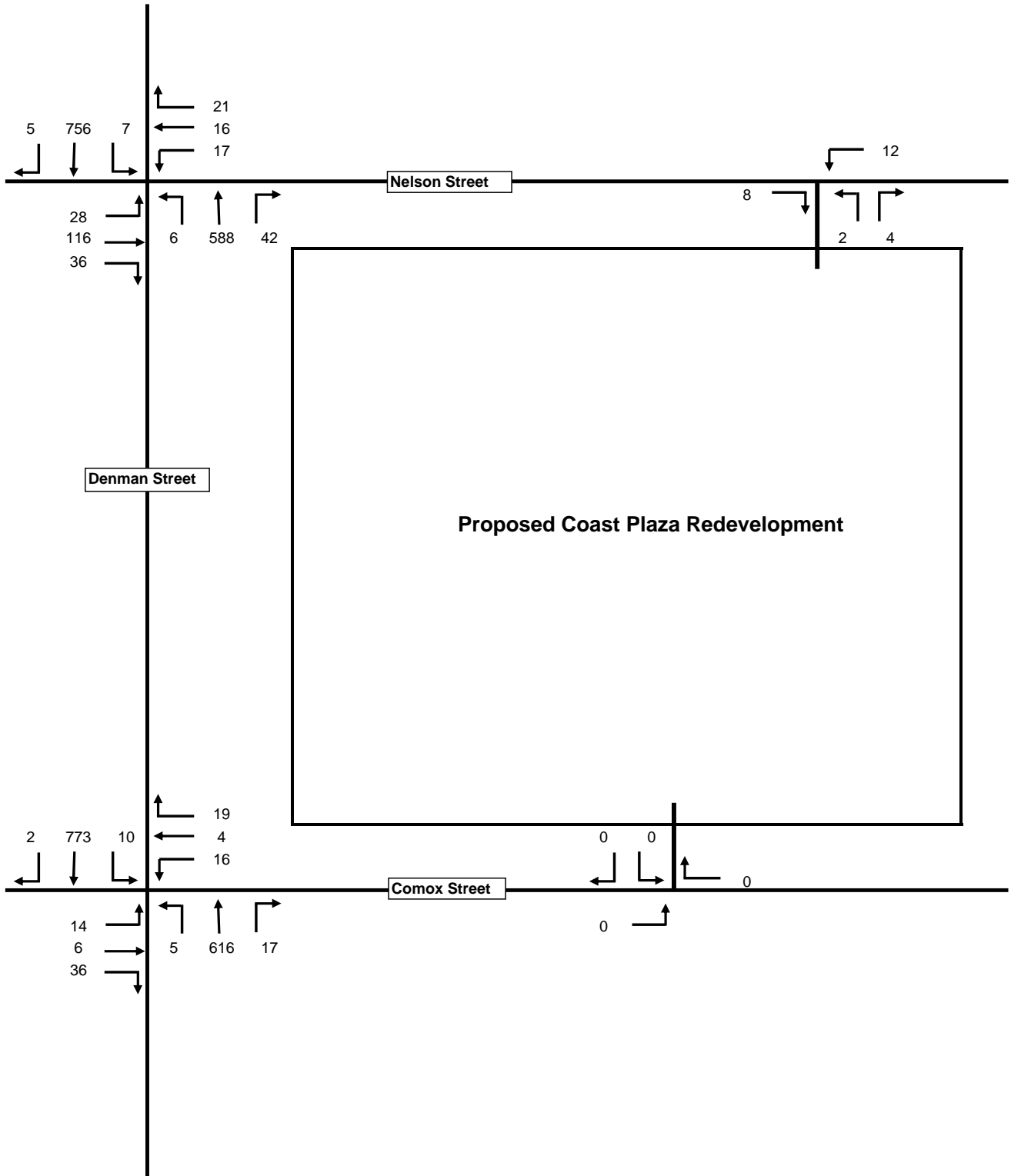
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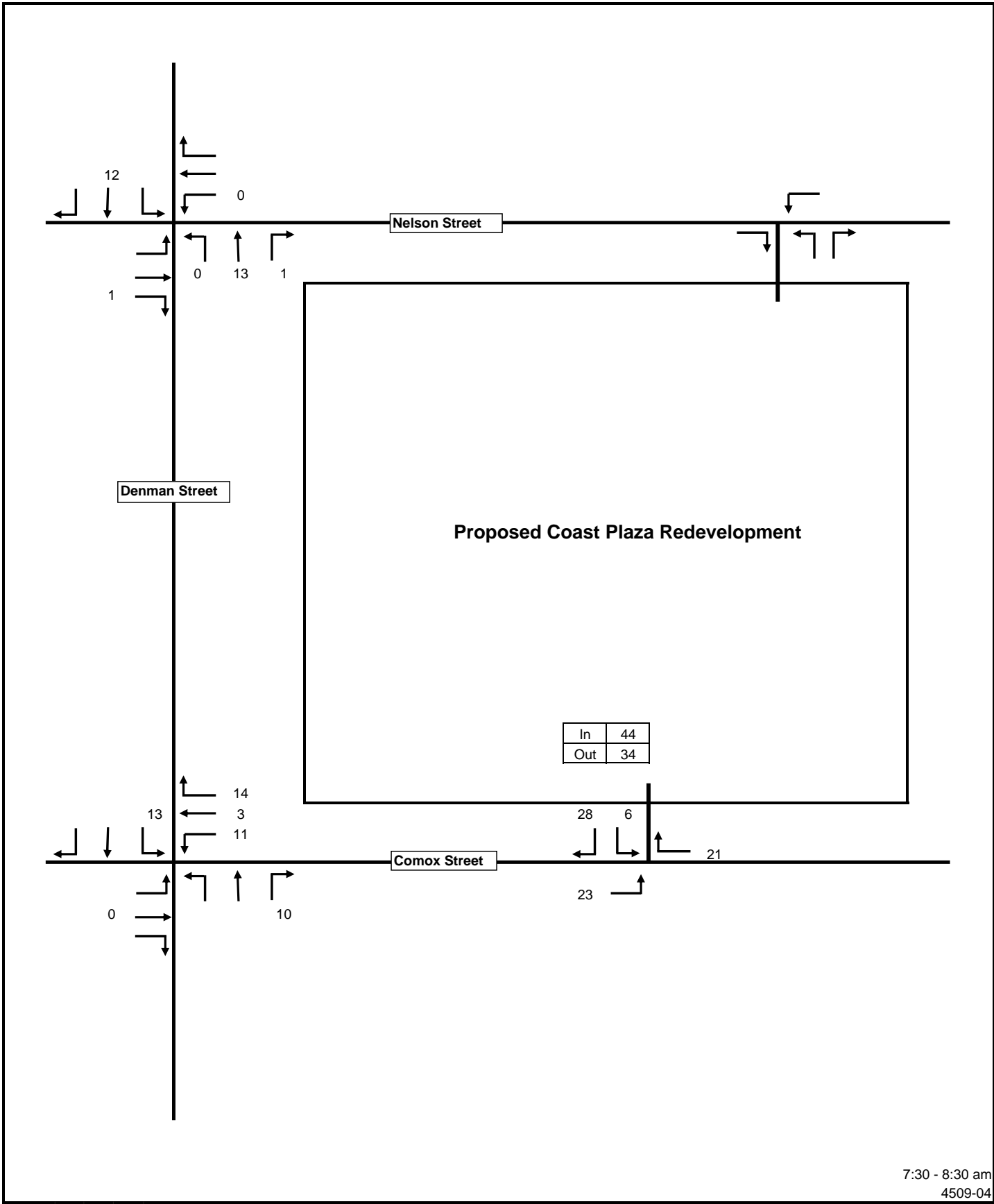
APPENDIX A – TRAFFIC FLOW DIAGRAMS

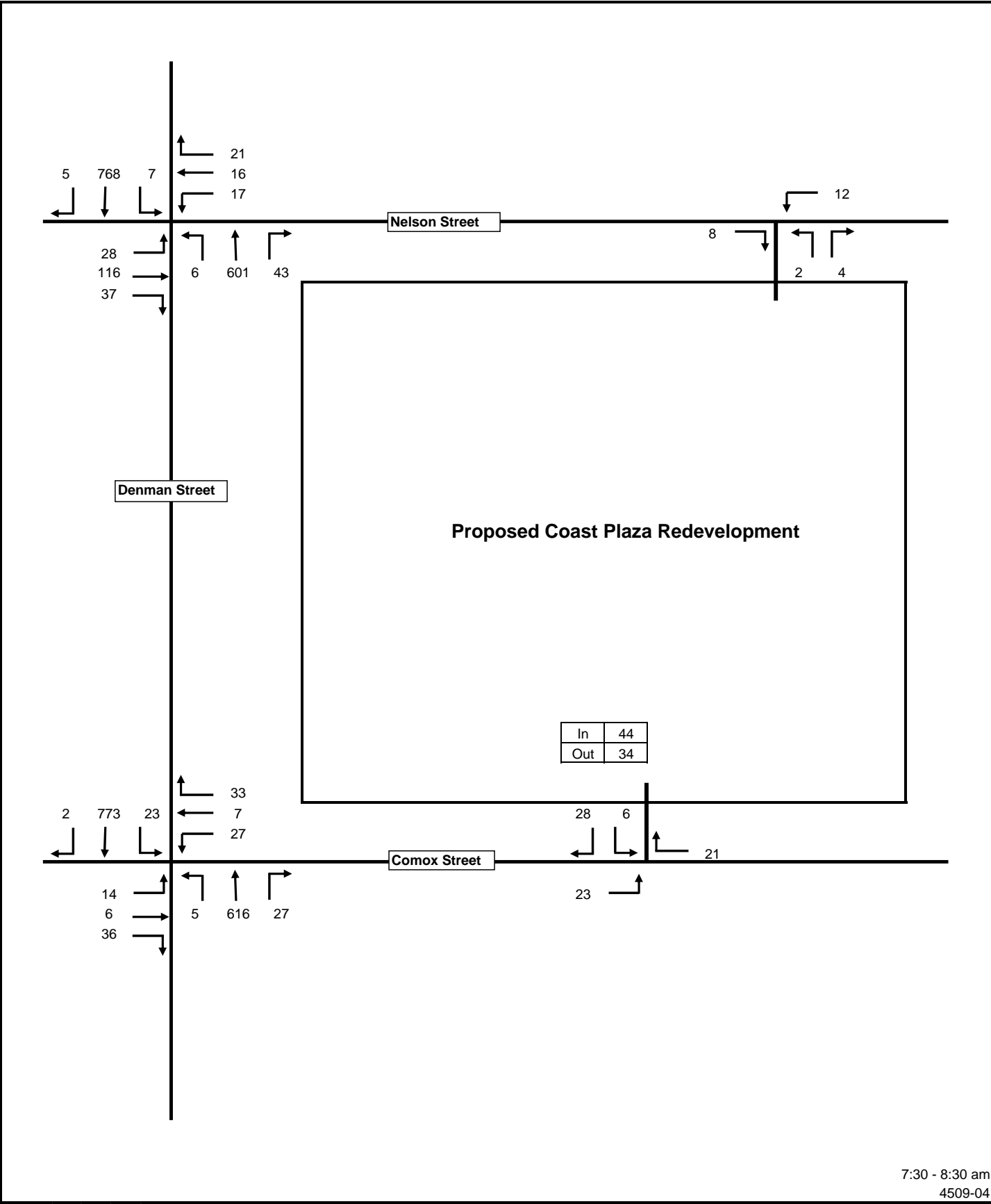


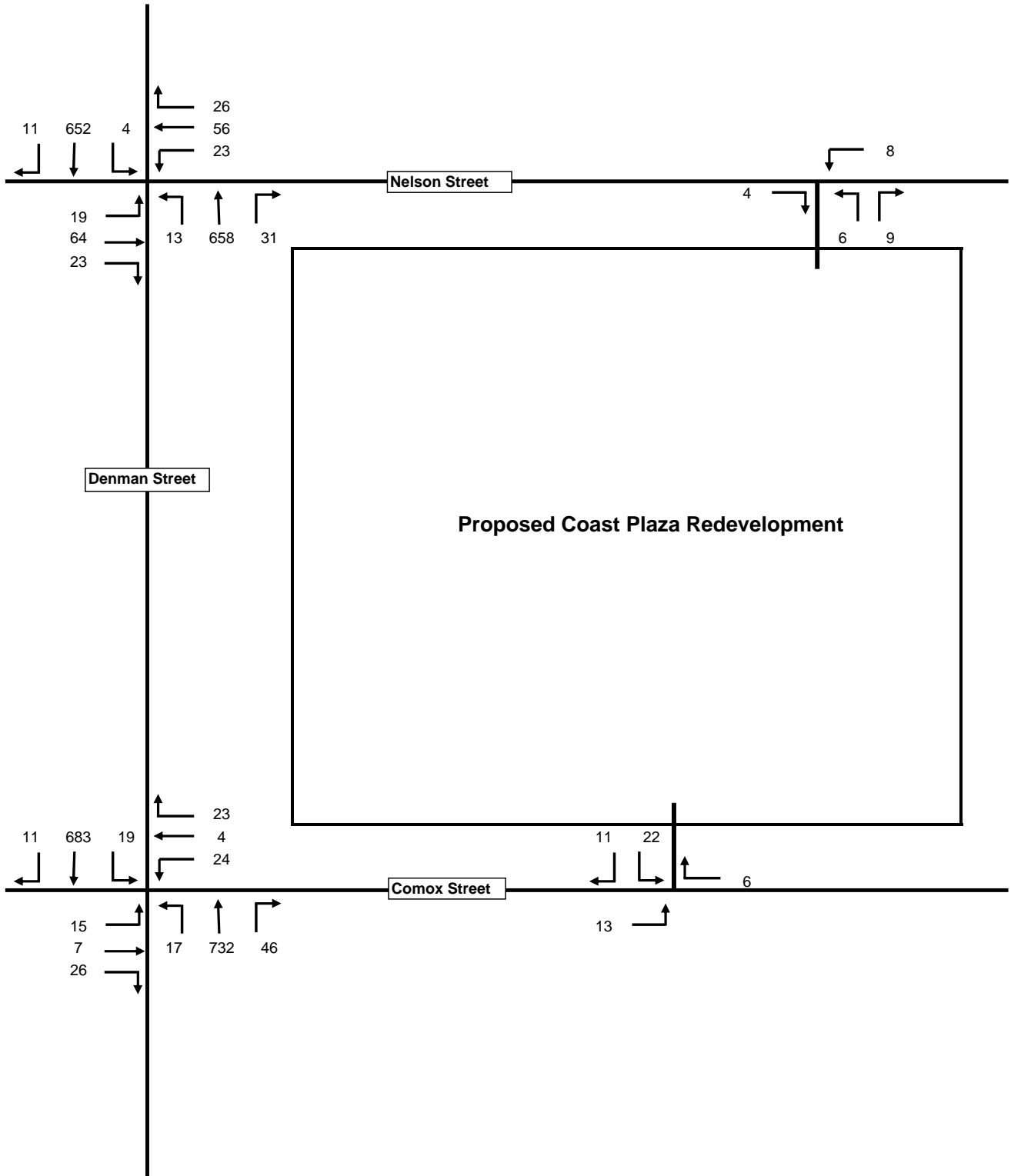




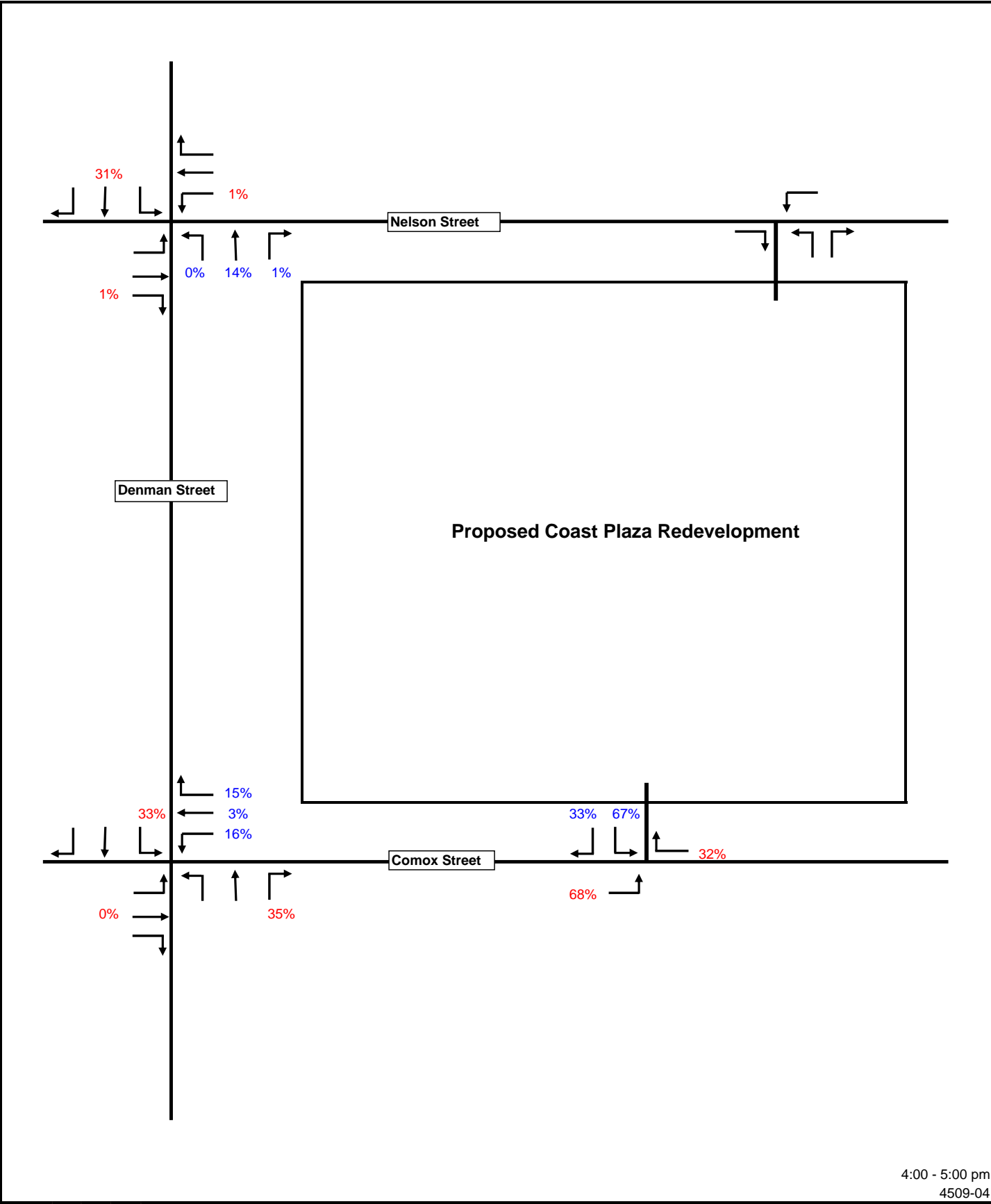
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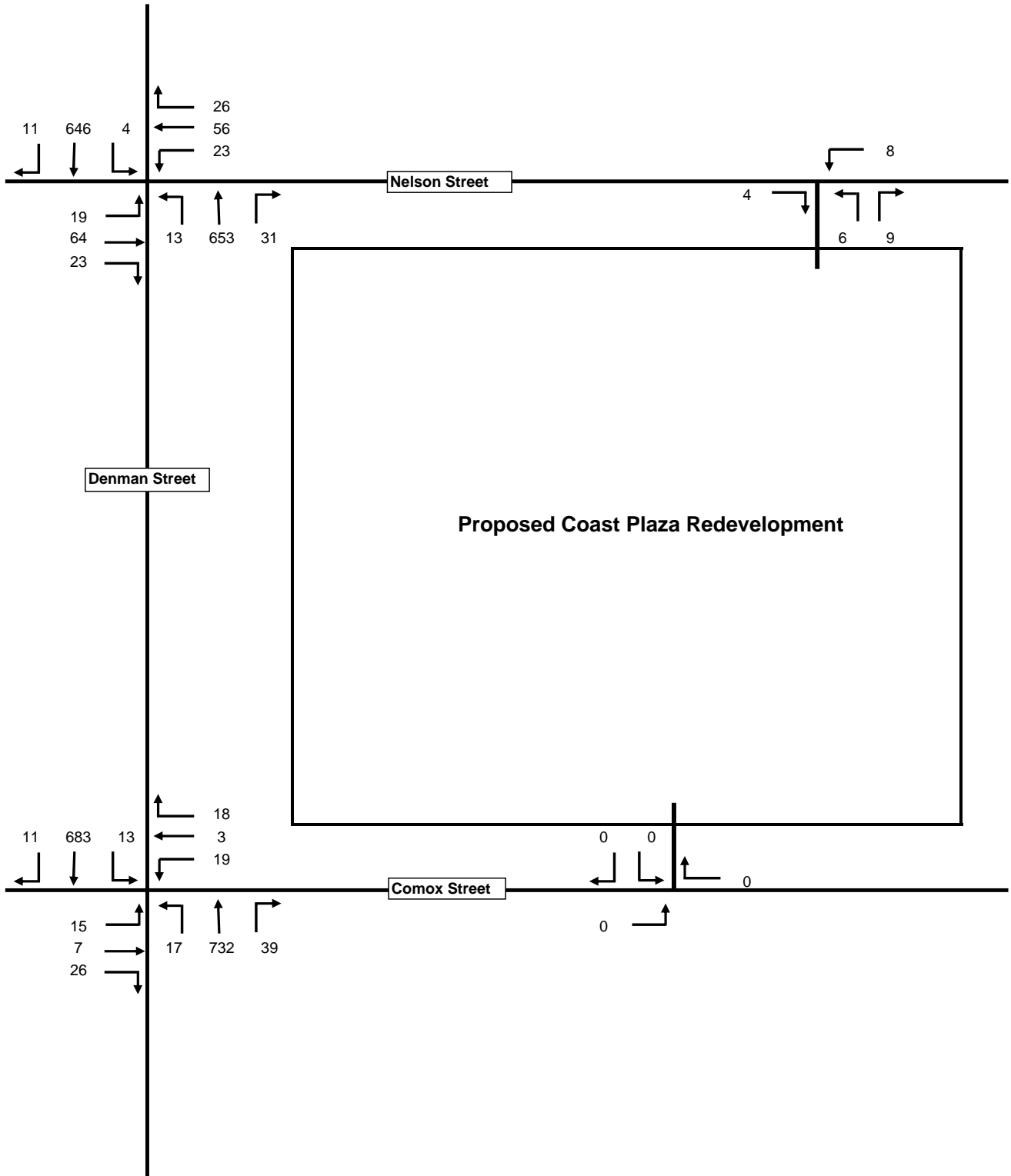




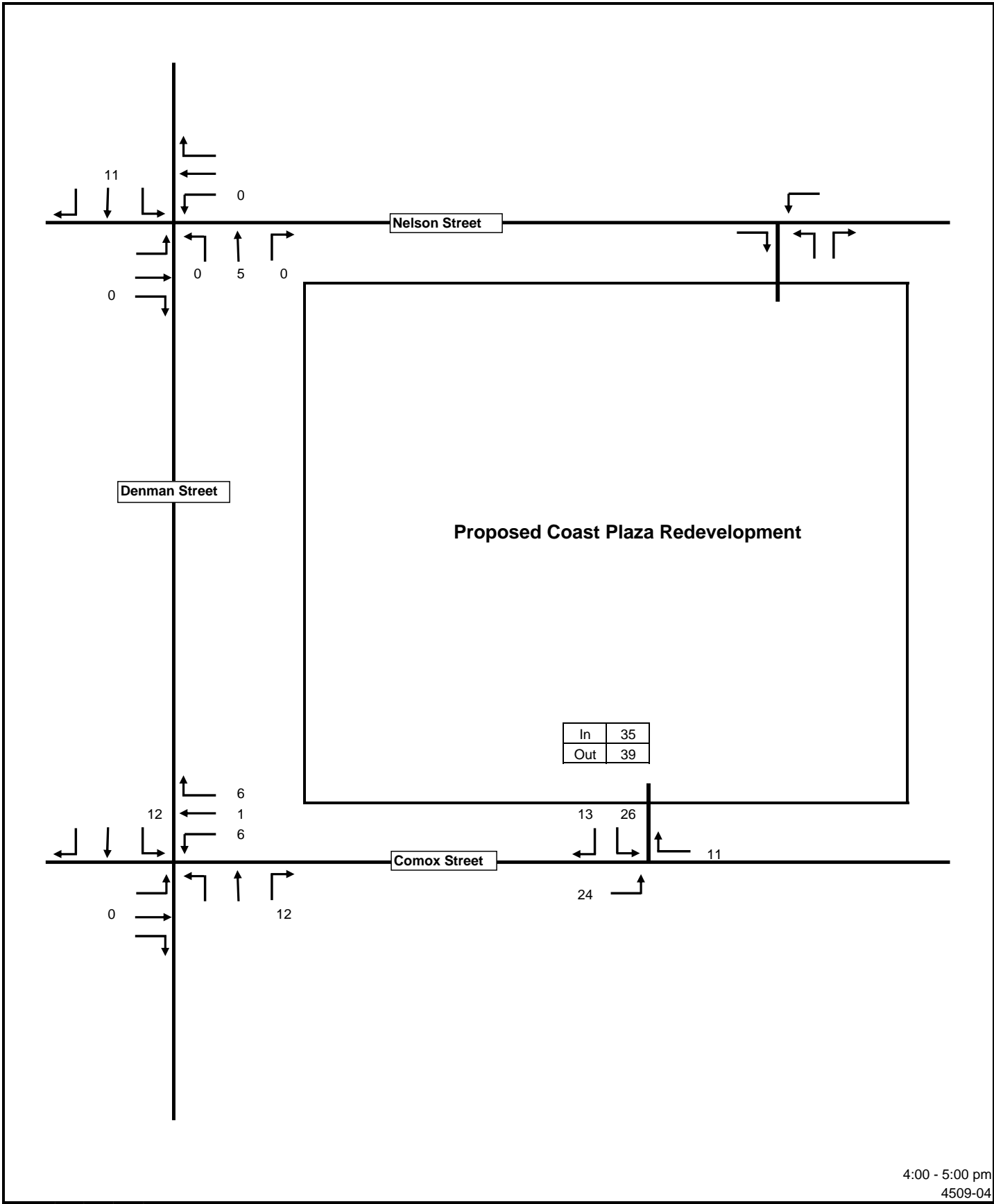


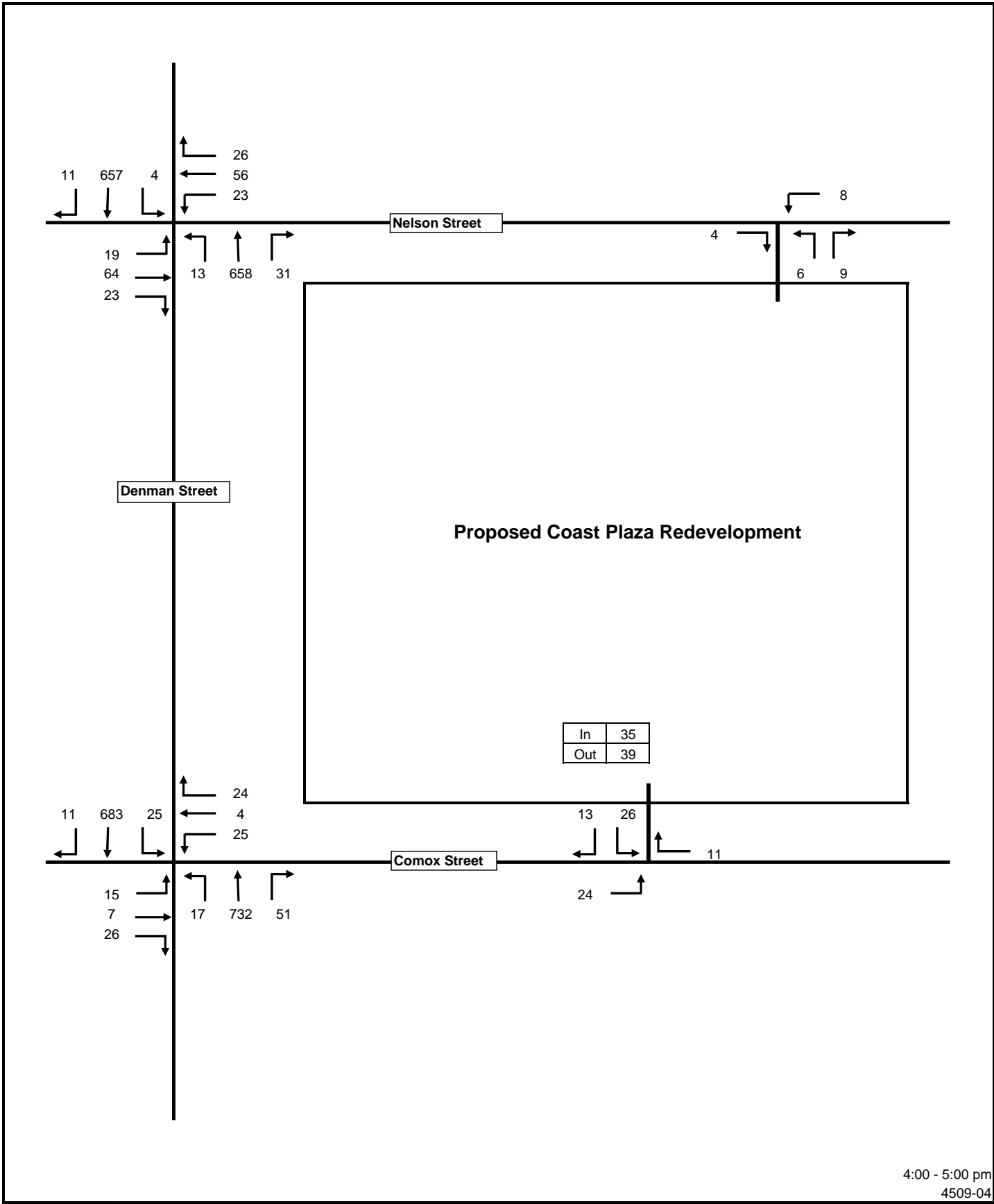
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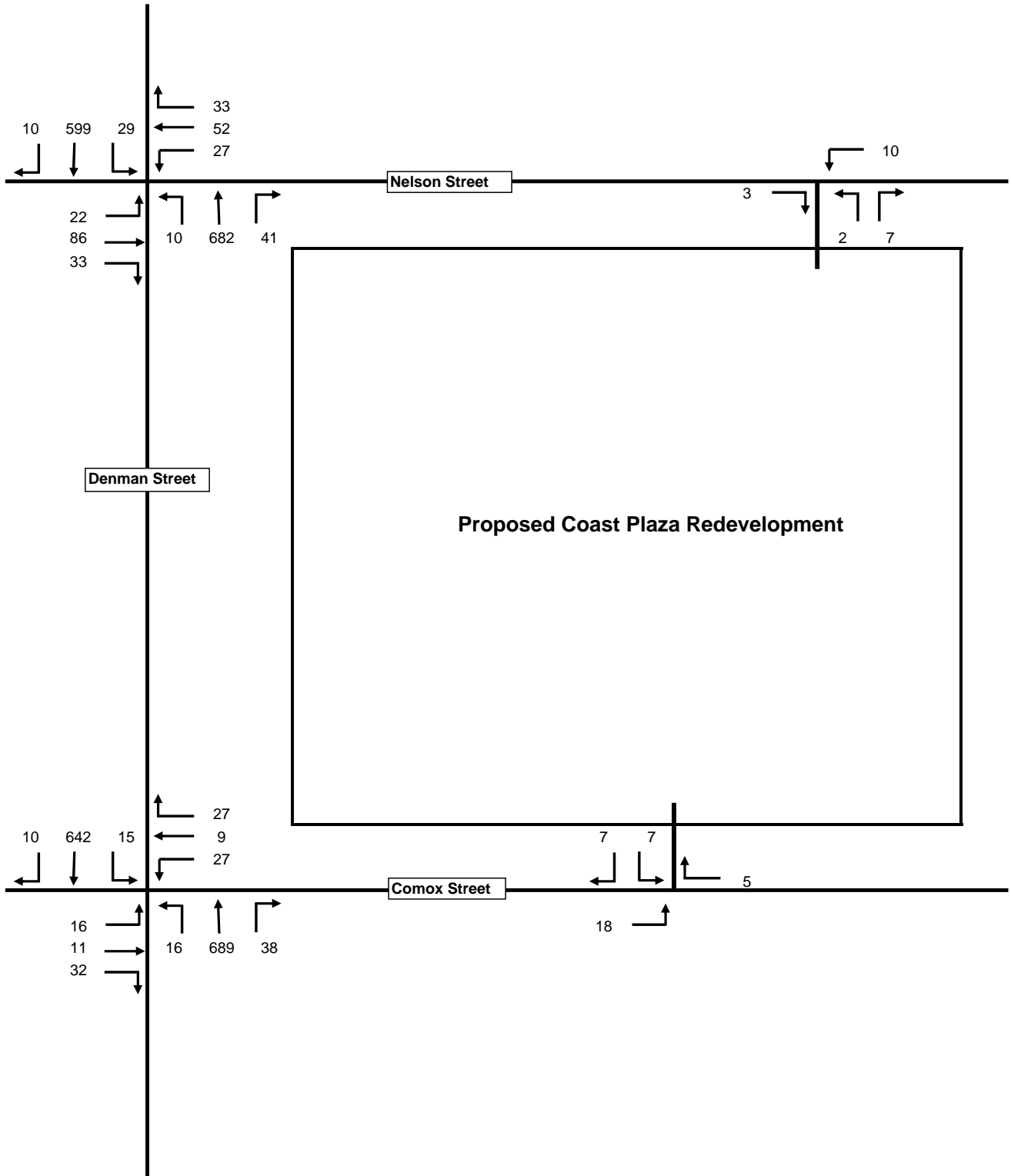




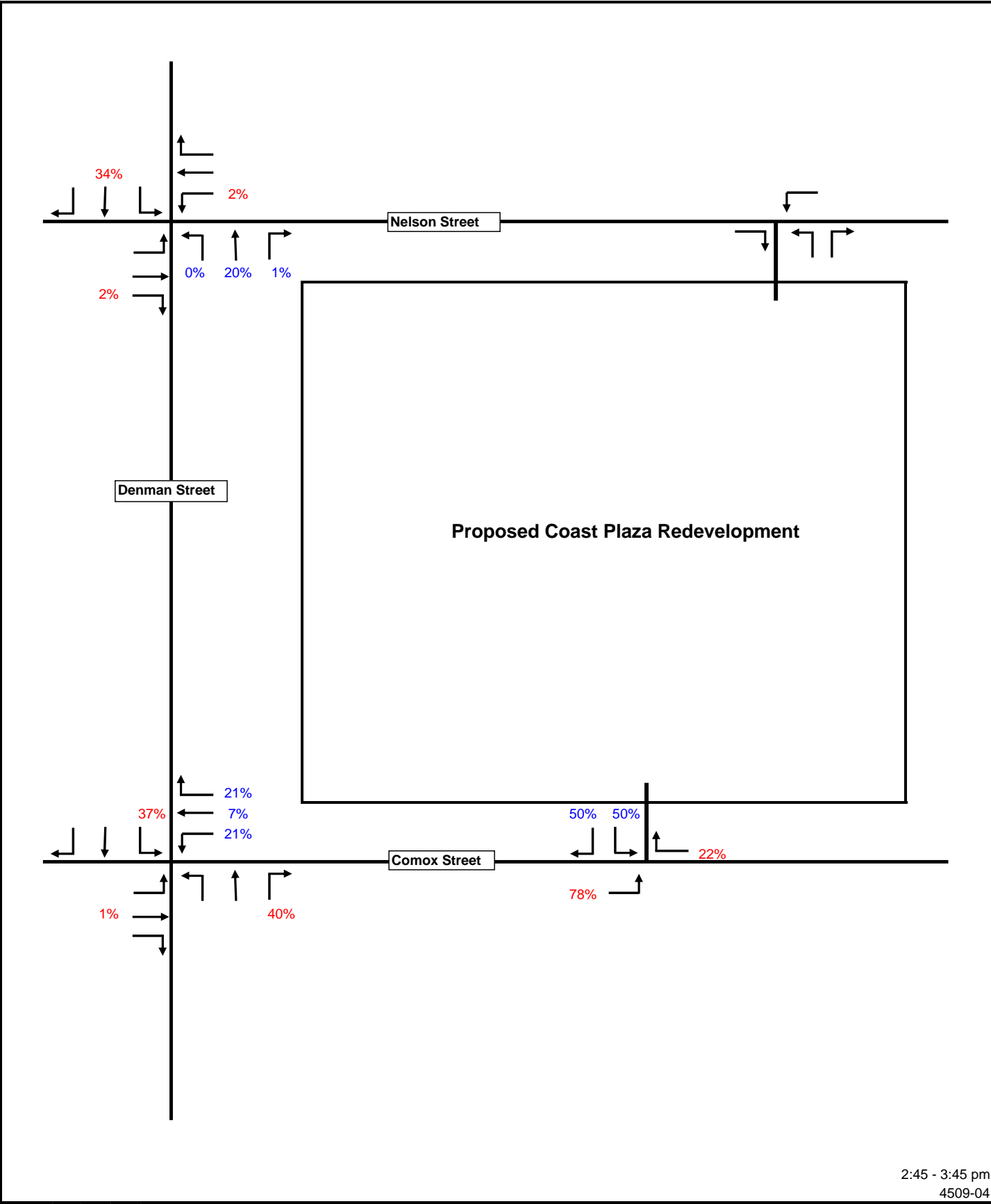
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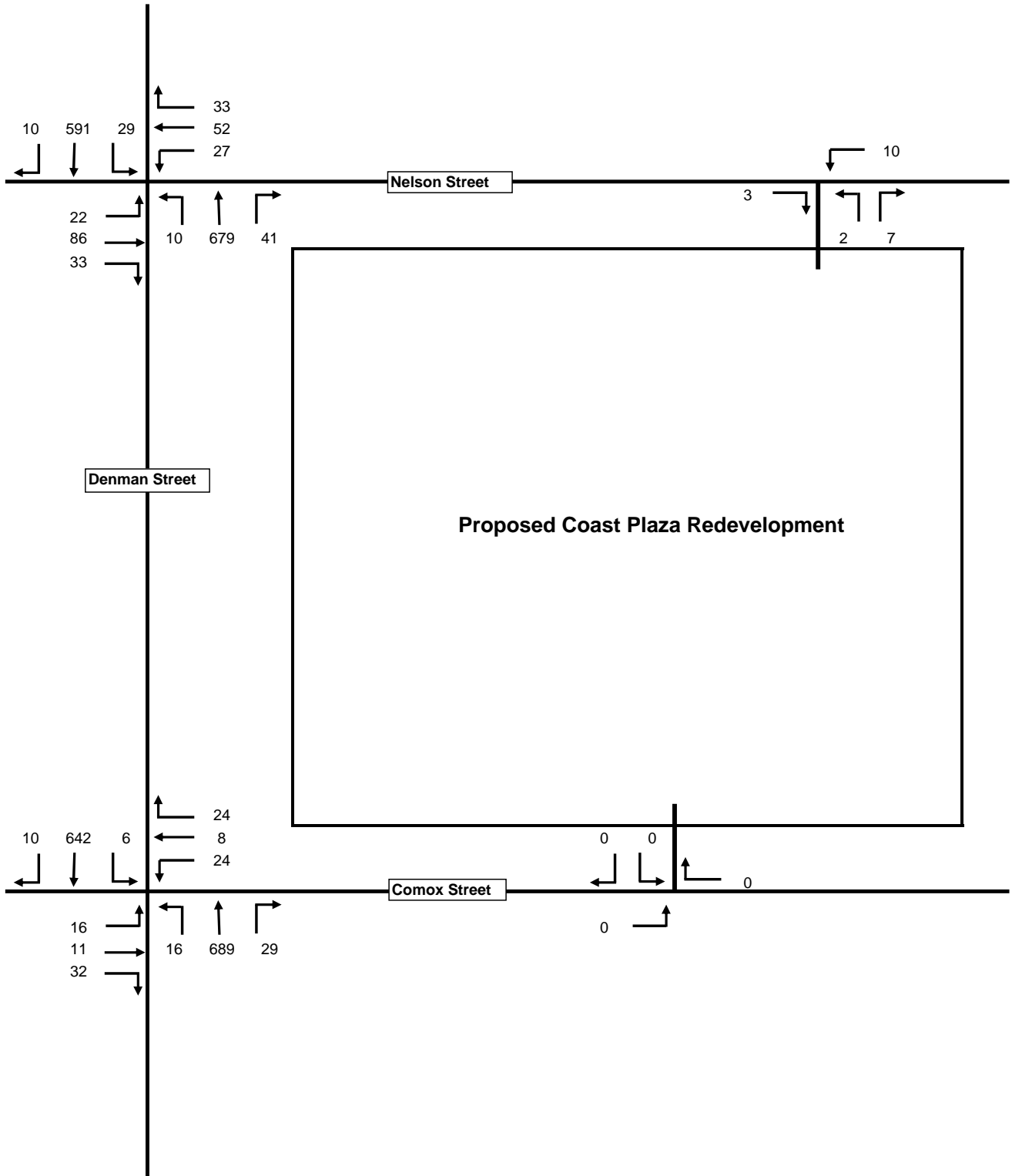




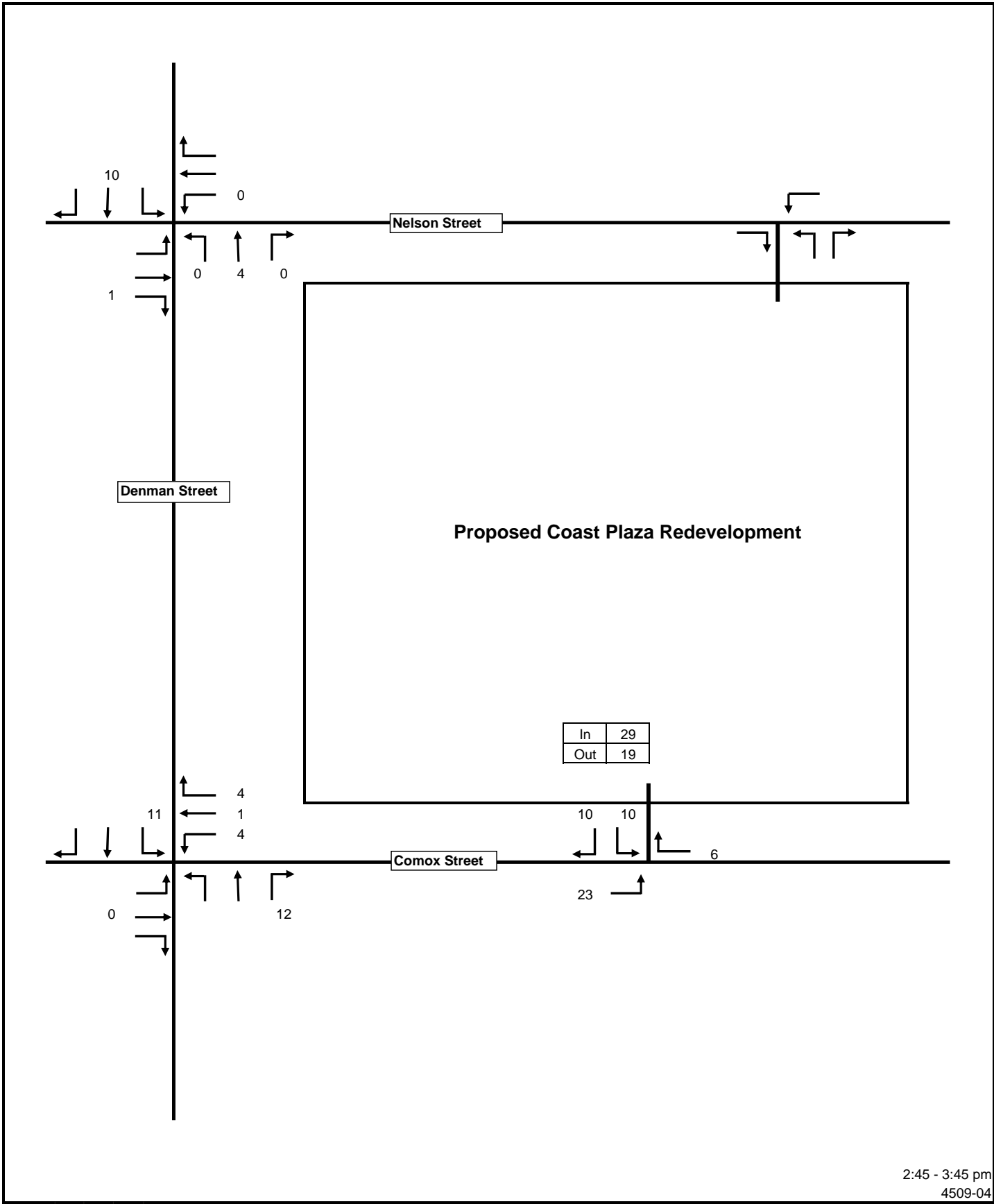
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4509-04

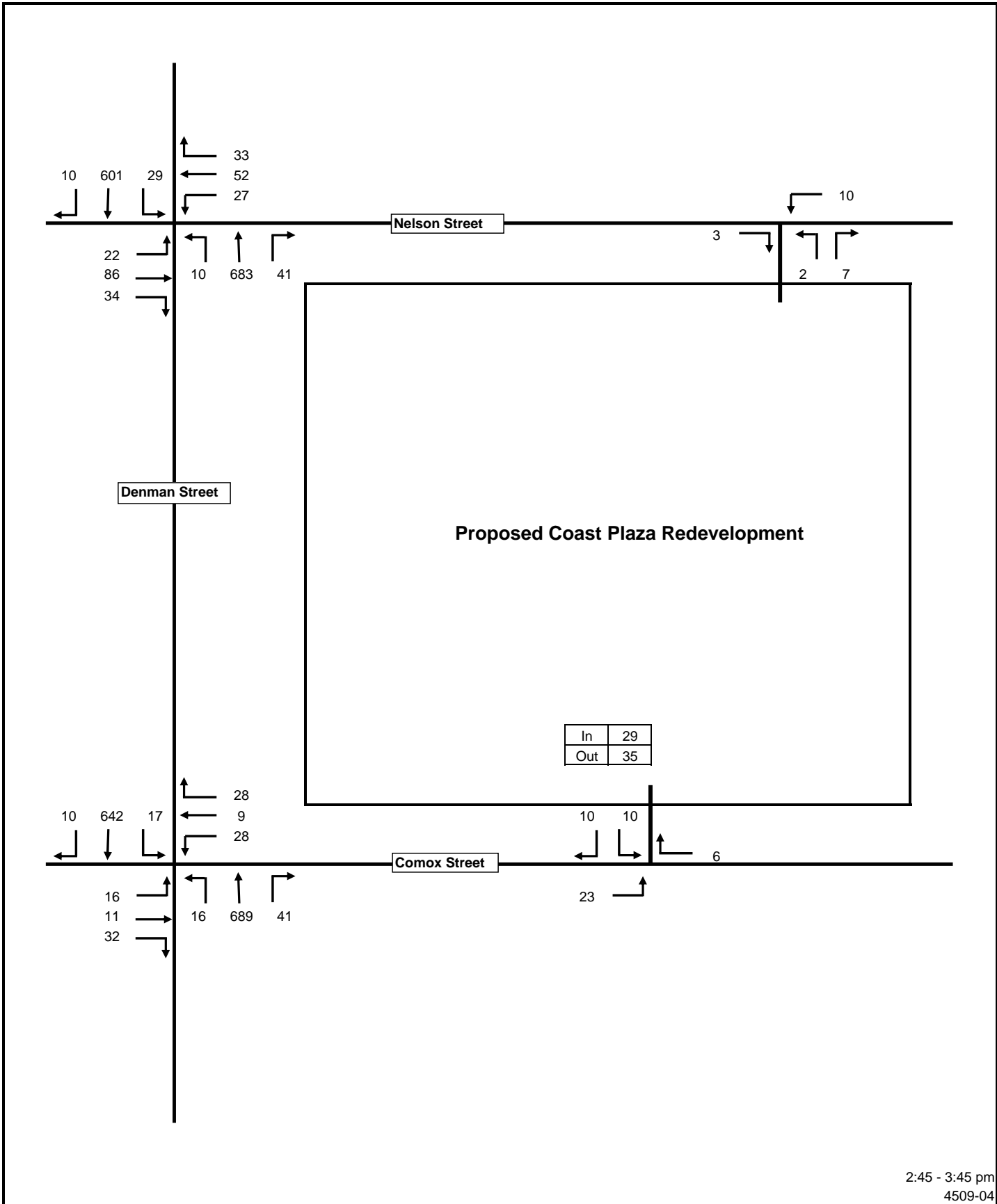


2:45 - 3:45 pm
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2:45 - 3:45 pm
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2:45 - 3:45 pm
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