

Parking Strategy Nanaimo Regional General Hospital Area Final Report

City of Nanaimo
April 2018

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File: 00001296.0054.01

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1.0 INTRODUCTION

In the spring of 2017, the City of Nanaimo initiated a study evaluate current on-street parking in the area surrounding the Nanaimo Regional General Hospital (NRGH) and make recommendations for how to manage any parking issues identified. The main parking concerns evaluated through this process include the perceived lack of on-street parking, growth in parking demand (due to the simultaneous expansion of NRGH and the ongoing densification of surrounding residential areas) and the potential for these issues to create conflict between area residents and people visiting or working at NRGH. Further, it is intended that the findings of this study will support the larger Hospital Area Plan and neighbourhood transportation plan, which are currently being undertaken in a parallel process.

The first step in developing a strategy for managing parking in the hospital area was to establish a baseline understanding of parking supply and demand in the area. Starting in early June 2017, several parking counts were undertaken to determine the occupancy and turnover of on-street parking near the hospital and NRGH off-street parking facilities.

This report provides an overview of the study methodology, results from both on-street and off-street parking counts, and feedback received from initial public engagement sessions conducted by the City of Nanaimo; including: a public open house and stakeholder meeting held in July 2017, and feedback from an online survey conducted June – August 2017. This report also summarizes previous data collections carried out by the City of Nanaimo.

2.0 GUIDING PRINCIPLES

In order to guide the planning process five Guiding Principles have been developed to establish a framework for developing solutions for the parking issues within the hospital area. These will provide the foundation for how to approach parking issues in the hospital area and ensure planning action for the hospital area, including land use, transportation and parking are coordinated.

- 1. Maximize Benefits For All Users** - Increase the flexibility and availability of on-street parking for all users groups in the Hospital Area through the efficient use of existing excess road space, with a focus on meeting the short and long term parking needs of both hospital staff and the broader community.
- 2. Fairness and Ongoing Customer Service** - Make parking more accessible and easier to find by implementing payment options (as required), improving signage, and providing up-to-date information while ensuring fair parking practices. As parking needs are dynamic and highly responsive to local conditions, the City will continually update the parking strategy over time, and seek new innovative ways to improve on the status quo, streamline enforcement and balance the parking needs of local institutions, businesses and neighbourhoods.
- 3. Ongoing Partnerships** - Parking policies will coordinate residential, business and institutional sectors to ensure the diverse parking and transportation needs of these users are addressed in an efficient and economical way. In particular, the City should work with the Nanaimo Regional General Hospital to identify solutions that lead to positive outcomes for both organizations and ensure that future changes to the Hospital campus do not negatively impact other user groups in the area.
- 4. A Balanced Transportation System** - Parking management is used to encourage alternative modes of transportation, such as walking, cycling and public transportation. Parking supply should be strategically managed to meet the overall objectives for the neighbourhood, as well as the goals and objectives of the Nanaimo Transportation Master Plan. Making transit cost competitive to driving by linking parking costs to transit costs is essential.
- 5. A Self-funded Parking System** - Fees collected from parking will be used to pay for the parking system (infrastructure, maintenance, equipment, enforcement, upgrades, customer service, land acquisition, management and more). Pricing levels will reflect relative demand while ensuring that parking in the Hospital Area of the City is self-funded by including the cost of future upgrades, land acquisition, and asset management in the cost of parking. This user pay system will aim to balance the needs of parking customers with the costs of managing parking.

3.0 METHODOLOGY

To establish an understanding of the current parking supply and demand in the study area, shown in **Figure 3.1**, on-street and off-street parking areas were inventoried to verify the following:

- current number of parking spaces;
- their current level of utilization (occupancy);
- the average duration of vehicle parking (turnover); and
- time periods associated with peak utilization.

Parking data was collected throughout the entire study area, and on the hospital site itself using an ArcGIS tablet application for inputting data. The data collected from this area included the approximate parking capacity (hypothetical maximum number of parked cars), occupancy and turnover of on-street parking. This overall survey also verified all parking restrictions and accessible parking stalls.

Parking Supply

The maximum number of vehicles able to park on each block was approximated since most on street parking has undefined stalls and it can be difficult to distinguish driveways in front of residential homes. These approximations aim to represent the maximum capacity based on the amount of space typically left between vehicles and the normal mix of vehicle sizes. However, it is possible to occasionally obtain an occupancy over 100 percent, if vehicles are parked very closely together or there is a higher proportion of smaller vehicles.

Study Period

This survey was conducted over various days and time periods:

1. Wednesday May 31st – Confirmed On-street Parking Supply Data
2. Wednesday June 7th – Off-street Hospital Parking Occupancy Data Collection (Full-day) - four time periods 7 am – 10 am | 11 am – 2 pm | 3 pm – 5 pm | 6 pm – 8 pm
3. Thursday June 8th – On-street Parking Occupancy Data Collection (Full-day) - four time periods 7 am – 10 am | 11 am – 2 pm | 3 pm – 5 pm | 6 pm – 8 pm
4. Thursday September 21st – On-street Parking Turnover Data Collection with Bylaw Services using ALRP (Full-day) - three time periods 8 am – 12 pm | 1:30 pm – 3:30 pm | 4:30 pm – 6:30 pm

It should be noted that turnover data was collected primarily for larger public streets and was not collected for the majority of smaller residential streets in the study area.

Previous Data Collection Efforts

This report also provides an overview of prior data collection efforts completed by the City of Nanaimo in the winter of 2017 during the following times:

- Wednesday January 11th - On-street Parking Occupancy – Two time periods 1 pm | 7 pm
- Sunday January 22nd - On-street Parking Occupancy – One time period 1 pm
- Sunday January 29th - On-street Parking Occupancy – One time period 2 pm
- Wednesday February 22nd - On-street Parking Occupancy – Two time periods 2 pm | 6:30 pm

3.1 Data Interpretation

The occupancy data collected for on-street parking areas includes the number of cars parked along each block segment, the parking restrictions, and hypothetical maximum parking spaces. Occupancy data for off-street parking areas includes the number of stalls in each parking lot, including occupancy for specialized stalls (i.e. physician parking, emergency call-back, contractors, etc.).

The occupancy for both on-street and off-street parking areas was calculated using:

$$\text{Occupancy} = \frac{\text{Parked Cars}}{\text{Maximum Parking Spaces}}$$

Example:

$$\text{Occupancy} = \frac{7}{14} = \mathbf{50\% \textit{ occupied}}$$

The data collected for turnover includes the license plate numbers and record time for a full-day period. The license plate recordings were compared from pass to pass to determine the number of cars that were the same, and the number of cars that were new.

The total turnover was calculated using:

$$\text{Total Turnover} = (\text{Pass 1 Parked Cars}) + (\text{Pass 2 New Cars}) + (\text{Pass 3 New Cars})$$

Example:

$$\text{Total Turnover} = 8 + 2 + 6 = \mathbf{16 \textit{ different cars parked}}$$

The average parking duration was calculated using:

$$\text{Parking Duration} = \frac{(\text{Pass 2 Parked Cars})(\text{Pass 2 Time} - \text{Pass 1 Time}) + (\text{Pass 3 Parked Cars})(\text{Pass 3 Time} - \text{Pass 2 Time})}{\text{Total Turnover}}$$

Example:

$$\begin{aligned} \text{Parking Duration} &= \frac{12 * (11:30AM - 10:00AM) + 8 * (12:45PM - 11:30AM)}{16} \\ &= 2.0 \textit{ hours} * \frac{\textit{parked cars}}{\textit{different cars parked}} = \mathbf{2.0 \textit{ hours}} \end{aligned}$$

This method for determining parking duration becomes more accurate the more passes that are recorded. Passes were made approximately every hour during the study day with exception of two break periods 12:00 pm - 1:30 pm and 3:30 pm – 4:30 pm. Because passes were performed within a set study period over the day, the average parking duration does not account for the duration of vehicles parked prior to the counts being initiated or after they were completed. This could lead to an actual average parking duration that is higher. Further, as the turnover recording was only carried out every hour the exact time of each vehicles arrival and departure is not known, therefore, a buffer factor of 1 hour was applied for each recording.

Moving forward, when interpreting the findings of this analysis it is important to understand that on-street parking is a public amenity and not for the exclusive use of one group. Ideal occupancy is about 85%. This ensures the community resource of parking is being well used and residents and visitors should typically be able to find an available parking spot within the block. Therefore, high parking occupancy levels of 70-85% are considered optimal as it shows this public amenity is being well utilized while leaving 15-30% of spaces open for new parking customers. Parking occupancies greater than 85% should be considered high and reflective of a situation where demand for parking is beginning to exceed supply.

In the determination of outputs from this study or implementation of potential parking management strategies it is important to recognize the challenges experienced by residents and visitors in some locations. However, any parking restrictions should look to assist residents and visitors with parking, but should not be created to guarantee parking availability. If parking immediately adjacent to a resident's home is essential they should plan to meet this need within their property.

4.0 ANALYSIS

The analysis presented in **Sections 4.1 - 4.4** (below), contains a breakdown of the number of on-street parking spaces available during these times and a preliminary overview of the changing demand / supply of parking in the study area.

The following analysis evaluates current parking demand and supply in the Hospital Area, including:

- ▶ Current parking restrictions
- ▶ Recently completed transportation and parking enhancements
- ▶ Existing parking supply
- ▶ On-Street parking conditions
 - Current parking supply and demand
 - Parking turnover
- ▶ Off-street parking conditions

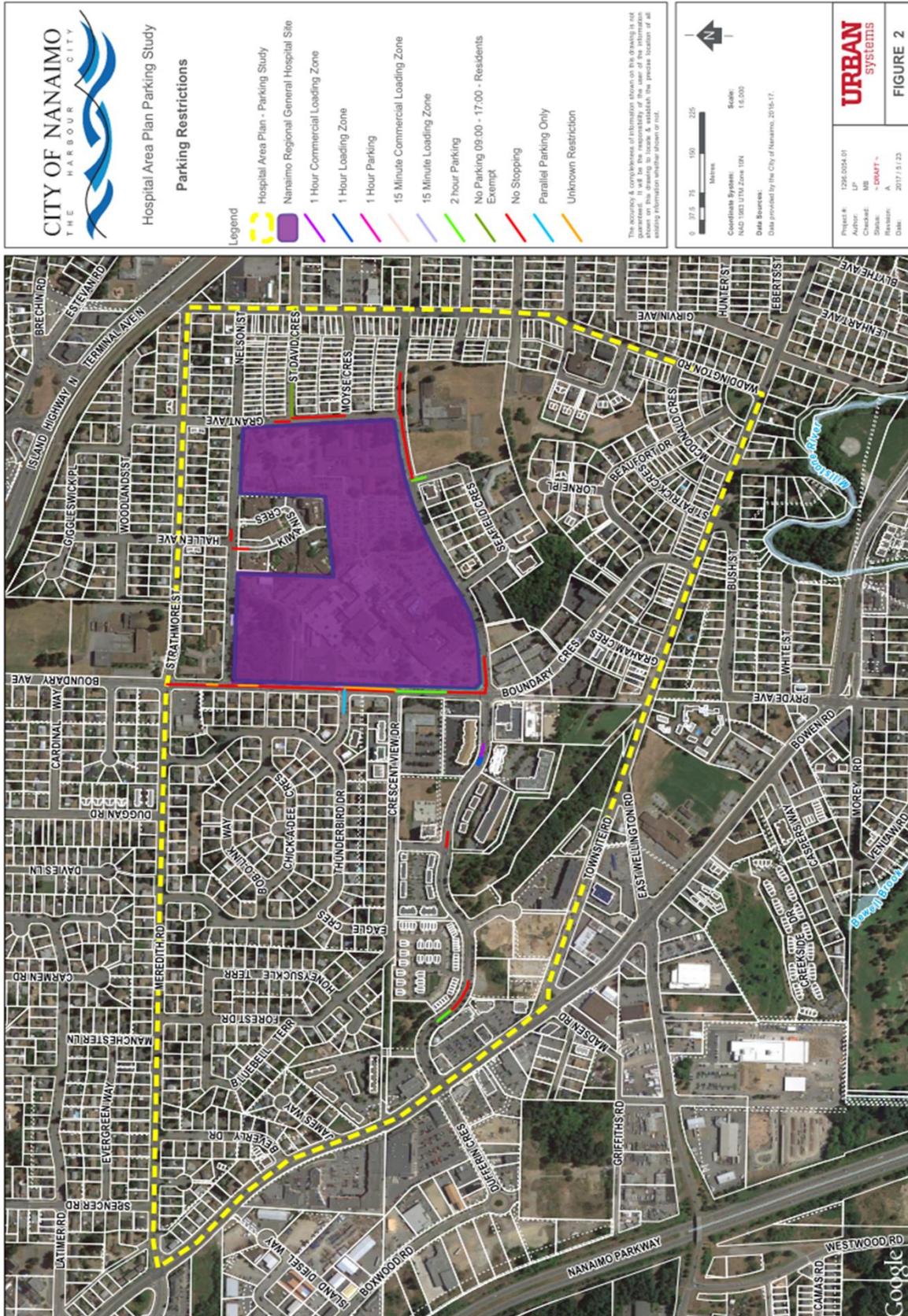
4.1 Current Parking Restrictions

As shown by **Figure 4.1**, there are currently three types of parking restrictions in the Study Area, including:

- ▶ 1-hour parking;
- ▶ 2-hour parking;
- ▶ Residential parking only.

There are also several designated loading zones (i.e. 1 hour loading zone and 15 min loading zone) where parking is restricted, which have also been identified for the study area. Overall, the majority of streets or portions streets do not currently have parking restrictions.

Figure 4.1 - Current Parking Restrictions



4.2 Previously Completed Transportation and Parking Enhancements in the Hospital Area

Over the past several years the City has made several efforts to improve the parking situation in the hospital area. These include the following changes:

- ▶ Added new 2 hour time restrictions to Boundary Crescent;
- ▶ In 2015 the City installed new cycling facilities, including dedicated bike lanes along Boundary Avenue, Boundary Crescent, Townsite Road, Bush Street and Pryde Avenue.
- ▶ Sidewalks have been completed on Boundary Crescent between Dufferin Crescent and Townsite Road, and on Strathmore Street between Boundary Avenue and Hallen Avenue.
- ▶ A new private five-storey above grade parking structure at 1515 Dufferin Crescent is under development in the area adding 203 parking spaces or 90 additional parking spaces beyond the 113 required.
- ▶ Various signage improvements and replacements made throughout the hospital area (ongoing).

4.3 On-Street Parking Current Conditions

The following section provides an overview of on-street parking conditions in the Hospital Area, including occupancy and turnover.

4.3.1 On-Street Parking Occupancy

The following observations for parking occupancy are based on on-street parking collected on Thursday June 8th as part of the parking study as well as data collected by City Staff in the winter of 2017 prior to the studies initiation. The existing inventory of on-street parking in the Study Area includes approximately 1812 spaces.

4.3.1.1 Morning

The morning count was completed on Thursday, June 8th, 2017 between 7:00 am and 10:00 am. The results of these counts are shown in **Table 4.1** (below).

- ▶ During the morning time period 7 – 10 am 611 stalls (34%) were occupied of the 1812 stalls present.

Table 4.1 – Existing on-Street Parking Inventory Daytime

Time	7:00 am - 10:00 am
Total Number of Stalls	1812
Total Number of Cars	611
Percent Occupied	34%

In the morning the majority of streets adjacent to the hospital were beginning to see high occupancy levels with several sections exceeding 85%, several were at 100% capacity. Streets further from the study area generally remained fairly quiet. Streets with high occupancy (i.e. exceeding 85%), included:

- ▶ Boundary Crescent between Dufferin Crescent and Graham Crescent
- ▶ Dufferin Crescent between Boundary Avenue and Grant Avenue
- ▶ Dufferin Crescent between Crescent View Drive and the main section of Dufferin Crescent
- ▶ Crescent View Drive between Forest Drive and Boundary Avenue
- ▶ Seafield Crescent

A breakdown of occupancy by street and location can be found in **Appendix A, Figure A1**

4.3.1.2 Mid-day

Mid-day parking counts were conducted Thursday, June 8th, 2017 between 11:00 am and 2:00 pm. The results of these counts are shown in **Table 4.2** (below).

- ▶ At Mid-day 665 stalls (37%) were occupied of the 1812 stalls present.

Table 4.2 – Existing on-Street Parking Inventory Daytime

Time	11:00 am – 2:00 pm
Total Number of Stalls	1812
Total Number of Cars	665
Percent Occupied	37%

In general, mid-day was the busiest time for parking in the study area with the majority of streets adjacent to the hospital near or exceeding 85% occupancy. However, most of the surrounding residential streets remained relatively quiet throughout this period of the day. There was also a notable increase in parking on Dufferin Crescent, Townsite Road and Summerhill Place approaching Bowen Road, however, the highest occupancy areas generally correlate with areas directly adjacent to the hospital, including:

- ▶ Boundary Crescent between Graham Crescent and Dufferin Crescent
- ▶ Boundary Avenue between Dufferin Crescent and Strathmore Street
- ▶ Dufferin Crescent between Bowen Road and Boundary Avenue
- ▶ Dufferin Crescent between Boundary Avenue and Grant Avenue
- ▶ Dufferin Crescent between Crescent View Drive and the main section of Dufferin Crescent
- ▶ Crescent View Drive between Forest Drive and Boundary Avenue
- ▶ Seafield Crescent
- ▶ Grant Avenue between Dufferin Crescent and Nelson Street
- ▶ Nelson Street between Boundary Avenue and Grant Avenue

A breakdown of occupancy by street and location can be found in **Appendix A, Figure A2.**

4.3.1.3 Afternoon

Afternoon parking counts were conducted Tuesday, June 8th, 2017 between 3:00 pm and 5:00 pm. The results of these counts are shown in **Table 4.3** (below).

- ▶ In the afternoon counts 578 stalls (32%) were occupied of the 1812 stalls present.

Table 4.3 – Existing on-Street Parking Inventory Daytime

Time	3:00 pm – 5:00 pm
Total Number of Stalls	1812
Total Number of Cars	578
Percent Occupied	32%

By the afternoon parking occupancy in the study area started to decrease as a whole though several streets adjacent to the hospital remained near or above 85% occupancy. Residential streets were shown to have ample parking into the evening. The streets that continued to have higher occupancy rates were directly adjacent to the hospital and included:

- ▶ Dufferin Crescent between Bowen Road and Boundary Avenue
- ▶ Dufferin Crescent between Boundary Avenue and Grant Avenue
- ▶ Seafield Crescent
- ▶ Grant Avenue between Dufferin Crescent and Nelson Street
- ▶ Nelson Street between Boundary Avenue and Grant Avenue

A breakdown of occupancy by street and location can be found in **Appendix A, Figure A3**

4.3.1.4 Evening

Evening parking counts were conducted Thursday June 8th, 2017. The count was carried out between 6:00 pm and 8:00 pm. The results of these counts are shown in **Table 4.4** (below).

- ▶ Between 6 pm and 8 pm 390 stalls (22%) were occupied of the 1812 stalls present.

Table 4.4 – Existing on-Street Parking Inventory Daytime

Time	6:00 pm – 8:00 pm
Total Number of Stalls	1812
Total Number of Cars	390
Percent Occupied	22%

In the evening, parking was ample on every street in the study area. Some streets close to the hospital did have slightly higher occupancy rates, including:

- ▶ Boundary Avenue between Dufferin Crescent and Strathmore Street
- ▶ Dufferin Crescent between Boundary Avenue and Seafield Crescent
- ▶ Nelson Street between Hallen Avenue and Grant Avenue
- ▶ Dufferin Crescent between Crescent View Drive and the main section of Dufferin Crescent

A breakdown of occupancy by street and location can be found in **Appendix A, Figure A4**

4.3.1.5 Previous Counts Conducted by the City of Nanaimo

In the winter of 2017, the City of Nanaimo collected preliminary on-street parking data for streets immediately adjacent to the NRGH. These parking counts were conducted for both weekdays and weekends for afternoons and evenings. The follow section provides a brief overview of these counts and the occupancy rates observed. A complete summary is provided in **Appendix A (Figures A5 – A11)**.

Wednesday January 11th - On-street Parking Occupancy – Two time periods 1 pm | 7 pm

1:00 PM - The afternoon parking counts completed on Wednesday January 11th at 1:00 pm covered the majority of the study area covered in counts conducted on June 8th. The counts showed similar results to the June 8th study, with parking occupancy rates in excess of 85% observed on many of the streets surrounding the hospital, including:

- ▶ Dufferin Crescent between Bowen Road and Boundary Avenue
- ▶ Dufferin Crescent between Boundary Avenue and Grant Avenue
- ▶ Seafield Crescent
- ▶ Nightingale Crescent
- ▶ Grant Avenue between Dufferin Crescent and Nelson Street
- ▶ Nelson Street between Boundary Avenue and Grant Avenue
- ▶ Crescent View Drive (80% Occupancy)

7:00 PM – The evening counts completed on Wednesday January 11th at 7:00 pm covered a similar area to the June 8th study and showed very low parking occupancy for most streets in the study area. Only Townsite Road, Seafield Crescent and Dufferin Crescent has occupancy rates greater than 50%. This was fairly consistent with the findings for the study completed on June 8th, where parking demand appears to drop off substantially by the later afternoon.

Sunday January 22nd - On-street Parking Occupancy – One time period 1 pm

1:00 PM - The afternoon parking counts completed on Sunday January 22nd at 1:00 pm covered the majority of the study area covered in counts conducted on June 8th. In general, parking occupancy was substantially lower than the weekday counts collected on Wednesday January 11th at 1:00 pm. During this time the busiest streets for parking were Dufferin Crescent between Boundary Avenue and Waddington Road, which had a parking occupancy of 76%. Higher occupancy rates between 51% and 71% were observed on:

- ▶ Nightingale Crescent
- ▶ Boundary Avenue between Dufferin Crescent and Nelson Street
- ▶ Nelson Street between Boundary Avenue and Hallen Avenue
- ▶ Townsite Road between Boundary Crescent and Bowen Road

Sunday January 29th - On-street Parking Occupancy – One time period 2 pm

2:00 PM - The afternoon parking counts completed on Sunday January 29th at 2:00 pm covered a smaller area than the study area covered in counts conducted on June 8th. Counts were focused on roads immediately adjacent to the hospital. In general, parking occupancy was substantially lower than the weekday counts collected on Wednesday January 11th at 1:00 pm and similar to counts collected on the previous Sunday (January 22nd). During this time the busiest streets section was Dufferin Crescent between Boundary Avenue and Seafield Crescent, which had a parking occupancy of 73%. Higher occupancy rates between 51% and 71% were observed on:

- ▶ Boundary Avenue between Dufferin Crescent and Nightingale Crescent
- ▶ Nelson Street between Boundary Avenue and Hallen Avenue

Wednesday February 22nd - On-street Parking Occupancy – Two time periods 2 pm | 6:30 pm

2:00 PM - The afternoon parking counts completed on Wednesday February 22nd at 2:00 pm covered a smaller area than the study area covered in counts conducted on January 11th and June 8th. Counts were focused on roads immediately adjacent to the hospital. However, the counts showed similar results as the parking surveys conducted on January 11th and June 8th. This survey showed parking occupancy rates in excess of 85% on many of the streets surrounding the hospital, including:

- ▶ Dufferin Crescent between Summerhill Place and Boundary Avenue
- ▶ Dufferin Crescent between Boundary Avenue and Grant Avenue
- ▶ Seafield Crescent
- ▶ Nightingale Crescent
- ▶ Grant Avenue between St. David Crescent and Nelson Street
- ▶ Boundary Avenue between Dufferin Crescent and Nightingale Crescent
- ▶ Crescent View Drive between Forest Drive and Boundary Avenue

7:00 PM – The evening counts completed on Wednesday February 22nd at 6:30 pm also covered a smaller area than the study area covered in counts conducted on January 11th and June 8th. Again, counts were focused on roads immediately adjacent to the hospital. Similar to the January 11th and June 8th surveys observations, the evening of February 22nd showed very low parking occupancy for most streets in the study area. Only portions of Dufferin Crescent and Nelson Street had occupancy rates greater than 50%. This was fairly consistent with the findings for the surveys completed on January 11th and June 8th, where parking demand appears to drop off substantially by the late afternoon.

Summary Previous Counts

The counts conducted by City of Nanaimo staff in the winter 2017 reinforce the observations made in June. Both data sets generally show higher parking occupancy rates during the day into the early afternoon. Parking occupancy appears to peak mid-day then gradually fall-off in the latter half of the afternoon (3 pm), reaching much lower rates of occupancy by the early evening.

4.3.2 On-Street Parking Turnover

Turnover data collection was conducted on Thursday September 21st, 2017 by the City of Nanaimo Bylaw Services Utilizing an Automated Licence Plate Recognition (ALPR) system. The turnover study focused on a smaller sub-area of the total study area, which mostly included main roads and areas where parking occupancy was observed to be high.

Turnover data was recorded for three time periods morning (8:00 am – 12:00 pm), afternoon (1:30 pm – 3:30 pm) and evening (4:30 pm – 6:30 pm). The results of these counts are shown in **Table 4.5** (below), the existing inventory of on-street parking in the turnover study sub-area includes approximately 786 spaces.

Table 4.5 - Turnover Data

Time Period	Times	Number of Stalls	Number of Overtime Observations ¹	Percent Stalls Overtime	Average Parking Duration
Morning	8:00 am – 12:00 pm	786	656	83%	2.35
Afternoon	1:30 pm – 3:30 pm	786	307	39%	2.68
Evening	4:30 pm – 6:30 pm	786	151	19%	2.77
Overall Averages			918*		2.24

¹ Overtime observation represents the first 'overtime' observation of that vehicle in the series (i.e. recorded on at least 2 passes).

*Some cars were present in more than one time period, which is why this number does not equal Morning + Afternoon + Evening.

In the morning study 83% of parking stalls surveyed in the study area did not turnover, meaning 83% of on-street parking spaces contained a car that was parked in the same spot for at least two passes. The average parking duration in the morning was 2.35 hrs. (2 hrs. 21 mins). The turnover data collected on the afternoon of Thursday September 21st, 2017 had an average parking duration of 2.68 hrs. (2 hrs. 41 mins), which reflected an increase in duration as many cars remained parked since the morning collection period. In the afternoon period 39% of on-street parking spaces did not turnover, this was a significant decrease in the number of on-street parking spaces with cars that were parked in the same spot for at least two passes. The evening also saw an increase in parking duration from the morning period, but similar to the afternoon period also reflected decrease in the number of on-street parking spaces that contained a car that did not move between at least two passes. The average parking duration, in the evening period was 2.77 hrs. (2 hrs. 46 mins).

A breakdown of turnover by street and location can be found in **Appendix B, Figure B1 - B3**.

Turnover Summary

Overall, the turnover data collected reflects a relatively low turnover rate on roads adjacent to the hospital with average parking times ranging from 2.35 hrs. to 2.77 hrs. on non-residential streets adjacent to the hospital. However, the data did also reflects a significant number of people parking for 2 hours or less meaning that a large number of on street parking spaces were turning over somewhat frequently. Though the degree of turnover varied significantly from street to street (**see Appendix B, Figure B1 - B3**), the majority of people parking in this area seemed to either park for a short period of time (i.e. < 2.0 hrs.) or stay in the same spot for most of the day, with few people in between. Importantly, it was observed that the number of vehicles that did not turnover between at least two passes decreased throughout the day, with the highest intersection of parking occupancy and low-turnover occurring in the morning period where the same vehicles were recorded in 83% on-street spaces on multiple passes.

4.3.3 Summary On-Street Parking

On-street parking immediately adjacent to hospital can be characterized as well-utilized with high occupancy rates and low turnover throughout the day and into the early afternoon. Streets in the study area not immediately adjacent to the hospital were generally observed as having ample on-street parking. Several streets immediately adjacent to the hospital, such as Dufferin Crescent, Boundary Avenue, Seafield Crescent, Grant Avenue, Crescent View Drive and Nelson Street showed occupancy rates in excess of 85% during certain periods of the day. This was much higher than compared to the surrounding residential areas, which generally had ample parking throughout the day. Lower turnover rates were also observed on most of these busy streets, especially during the morning period where the same vehicles were recorded in 83% on-street spaces in multiple passes.

It should also be understood that although on-street parking areas adjacent to the hospital are busy, there is generally on-street parking available on most street. Further, though many cars remained parked in the same spot for multiple passes a large number of spaces appeared to turnover frequently. The data collected generally supports informal observations offered by residents and hospital staff, which suggested a large portion of on-street parking is occupied by hospital staff during the day, as well as hospital visitors attending clinics or visiting patients for shorter periods of time. Though the scale of this issue is still to be determined, it appears that the shortage of on-street parking is not severe and that a substantial amount of parking can still be found in close proximity (<400 m) to the hospital even during peak hours.

4.4 Off-Street Parking Current Condition

In order to better understand parking conditions in the hospital area off-street parking lots belonging to the hospital were surveyed to determine their occupancy and level of utilization throughout the day. The following section provides an overview of the off-street parking occupancy survey conducted on June 7th, 2017 between 7 am and 8 pm.

4.4.1 Inventory of Parking Stalls

Background information collected from the hospital provided a thorough inventory of the off-street parking facilities on the hospital site. **Table 4.6** below outlines the number of parking spaces in each of NRGH's eleven parking areas (Parking Areas A – H). For the purpose of interpreting the results of the off-street parking survey, parking spaces at NRGH have been divided into three categories:

1. Mixed Public and Staff
2. Staff
3. Other

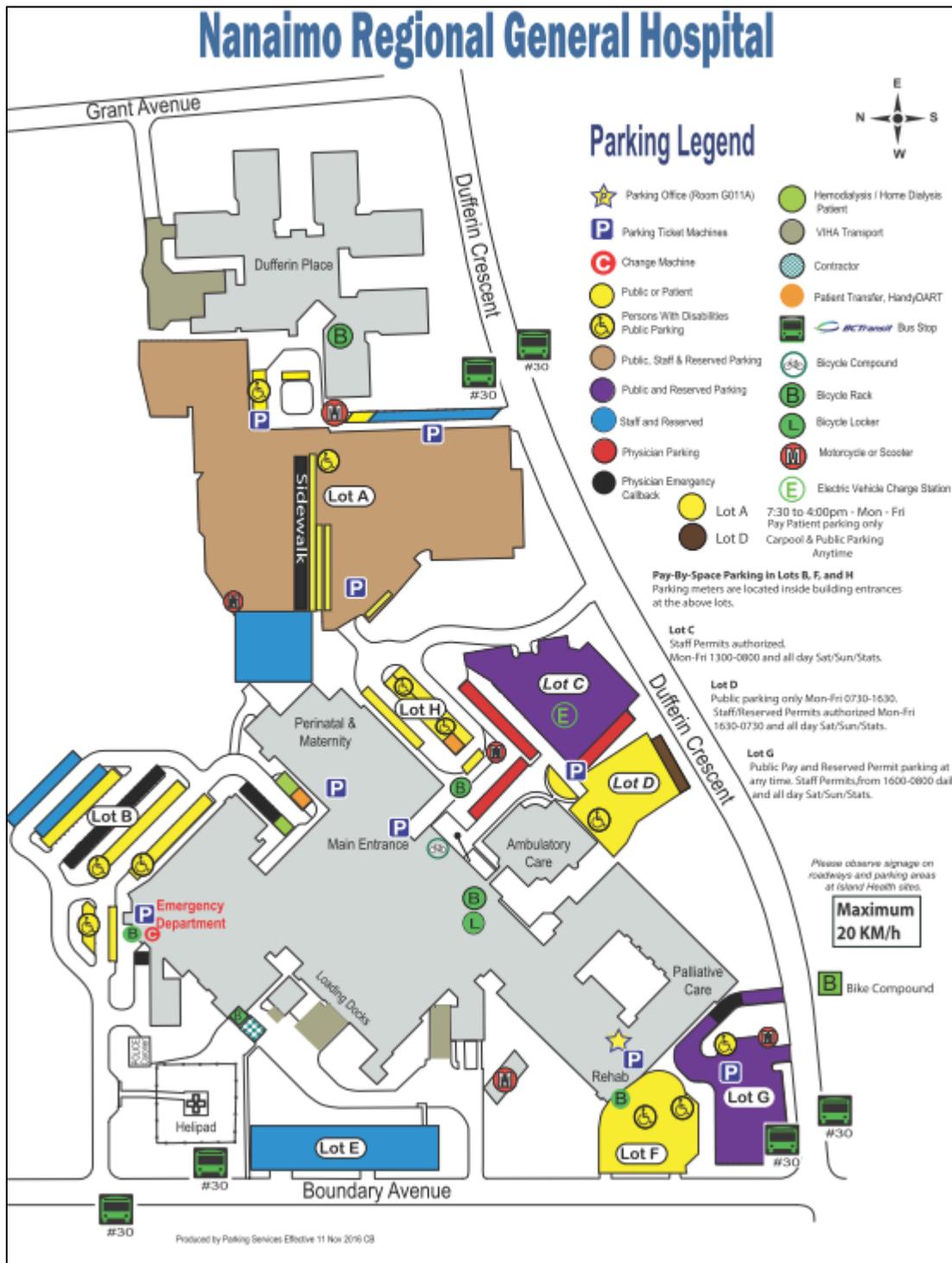
This will help determine the overall availability of parking space on the hospital site for these different hospital users. It should be noted, that parking at NRGH is divided into numerous categories with specialized parking areas for physicians, contractors, renal, electric vehicles and palliative care among others.

Table 4.6 - Off-street Parking Supply NRGH Owned Lots

	Mixed Public and Staff	Staff	Other	Total Spaces
A. Lower	214	13	2	229
A.Upper	224	0	2	226
A.Staff	0	32	0	32
B	63	31	26	120
B.Renal	0	0	18	18
C	67	0	43	110
D	51	0	0	51
E	0	53	0	53
Receiving	4	0	1	5
F	28	0	20	48
G	55	0	2	57
H	30	0	5	35
TOTALS	736	129	119	984

The parking areas listed above in **Table 4.6** can be identified and located on **Figure 4.2** (below), which also provides an overview of day and time restriction, as well as any special requirements for each parking area.

Figure 4.2 - NRGH Off-street Parking Overview Map



4.4.2 Off-Street Parking Costs

The vast majority of off-street parking at the NRGH is paid parking during weekdays with free parking available on weekends. The cost of parking on site for non-hospital staff is \$2.25 for first 2 hours, and \$1.25 for each additional hour; weekly permits are available for \$26.75. Hospital staff are offered discounted parking permits, which are applied through payroll deductions. Hospital staff also have the option of purchasing one day scratch tickets for \$10.50 (5 per pack). Reserved parking is provided to hospital staff at an additional cost. **Table 4.7** provides a breakdown of public and staff parking rates for comparison.

Table 4.7 - Monthly Off-street Parking Subscriptions NRGH

Parking Type	Parking Payment Option	Parking Cost per Hour	Cost per Day (8 hours)	Cost per Week (5 days)
Public	NRGH Public Parking Lots	\$2.25 for first 2 hours, and \$1.25 for each additional hour	\$9.75	\$48.75
	Weekly Permit	\$0.67	\$5.35	\$26.75
Staff	Hospital Employee Union	\$0.104	\$0.83	\$4.16
	Other employees	\$0.153	\$1.22	\$6.12
	Staff Reserved	\$0.239	\$1.91	\$9.56
	One day scratch tickets	\$0.26	\$2.10	\$10.50
Transit Pass	Propass		\$1.75	\$8.75
Bicycle	Bike Locker		\$0.216	\$1.08

Currently approximately 2,054 hospital staff members pay of monthly parking passes. A breakdown of staff parking permits is outlined in **Table 4.8** below.

Table 4.8 - Monthly Parking Subscriptions NRGH Staff

Staff Description	Count
Auxiliary	15
Carpool	1
Employee ANNUAL (NRGH)	2
Employee Payroll Deductions (NRGH)	1,294
Family Caregiver	141
Family Practice	26
Midwife LV2 (NRGH)	5
Pastoral Care	68
PHSA Payroll Deductions (NRGH)	9
Physician Call-back	40
Physician Level 1 (NRGH)	74
Physician Level 2 (NRGH)	49
Renal (NRGH)	34
Reserved Payroll Deductions (NRGH)	51
Volunteer	245
Grand Total	2,054

4.4.3 Off-Street Parking Occupancy NRGH

The following section provides an overview of off-street parking occupancy at NRGH. This analysis has been broken into four parts morning (7 am – 10 am), mid-day (11:00 am – 2:00 pm), afternoon (3:00 pm – 5:00 pm) and evening (6:00 pm – 8:00 pm).

4.4.3.1 Morning (7:00 am – 10:00 am)

During the morning period of the NRGH off-street parking survey, occupancy was shown to increase steadily in all lots and in all three categories. As shown in **Table 4.9** (below) dedicated staff parking is the first to fill-up in the morning exceeding 85% by 8:00 am and reaching 97% occupancy by 9:00 am. The public parking areas did not fill-up as quickly, however, by 9:00 am they are only 76% full.

A breakdown of occupancy by parking lot and location can be found in **Appendix C, Figure C1**.

Table 4.9 - Parking Occupancy NRGH Parking Lots Morning (7:00 am – 10:00 am)

Morning	7:00 AM			8AM			9:00 AM		
	Public	Staff	Other (Restricted)	Public	Staff	Other (Restricted)	Public	Staff	Other (Restricted)
A.Lower	46	1	1	131	3	1	205	11	1
A.Upper	66	0	1	111	0	1	194	0	1
A.Staff	0	32	0	0	32	0	0	32	0
B	7	30	0	21	28	6	24	31	7
B.Renal	0	0	3	0	0	6	0	0	7
C	27	0	8	38	0	18	50	0	34
D	9	0	0	14	0	0	21	0	0
E	0	39	0	2	49	0	2	51	0
F	0	0	0	5	0	0	13	0	0
G	6	0	1	15	0	2	24	0	2
H	10	0	3	18	0	4	26	0	4
TOTALS	171	102	17	355	112	38	559	125	56
Total Occupancy	23%	79%	14%	48%	87%	32%	76%	97%	47%

4.4.3.2 Mid-day (11:00 am – 2:00 pm)

NRGH parking facilities reached peak utilization during the mid-day period of the NRGH off-street parking survey. During this time occupancy for all unrestricted lots exceeded 85% with staff dedicated lots nearing 100% occupancy during this time. As shown in **Table 4.10** (below) dedicated staff parking is 99% full by 11:00 am in the morning. Public parking areas are also very busy reaching 91% occupancy by 1:00 pm.

A breakdown of occupancy by parking lot and location can be found in **Appendix C, Figure C2**.

Table 4.10 - Parking Occupancy NRGH Parking Lots Mid-day (11:00 am – 2:00 pm)

Mid-day	11:00 AM			Noon			1:00 PM		
	Public	Staff	Other (Restricted)	Public	Staff	Other (Restricted)	Public	Staff	Other (Restricted)
A.Lower	206	12	1	193	13	1	215	13	1
A.Upper	218	0	1	208	0	1	214	0	1
A.Staff	0	32	0	0	32	0	0	32	0
B	52	33	7	50	30	7	59	29	7
B.Renal	0	0	9	0	0	8	0	0	8
C	59	0	36	56	0	37	63	0	34
D	20	0	0	27	0	0	33	0	0
E	2	51	0	2	51	0	2	48	0
F	22	0	0	24	0	0	21	0	0
G	37	0	1	38	0	2	35	0	2
H	28	0	4	28	0	4	28	0	4
TOTALS	644	128	59	626	126	60	670	122	57
Total Occupancy	88%	99%	50%	85%	98%	50%	91%	95%	48%

4.4.3.3 Afternoon (3:00 pm – 5:00 pm)

By the afternoon period occupancy levels of NRGH parking facilities remain busy, but are starting to decrease. Dedicated staff parking areas continue to exceed 85% occupancy until 4:00 pm. As shown in **Table 4.11** (below), dedicated staff parking drops from 90% occupancy at 3:00 pm to 74% occupancy by 4:00 pm in the afternoon. Public parking areas also remain busy until 4:00 pm when they drop to about 50% occupancy.

A breakdown of occupancy by parking lot and location can be found in **Appendix C, Figure C3**.

Table 4.11 - Parking Occupancy NRGH Parking Lots - Afternoon (3:00 pm – 5:00 pm)

Afternoon	3:00 PM			4:00 PM		
	Public	Staff	Other (Restricted)	Public	Staff	Other (Restricted)
A.Lower	203	13	0	128	8	0
A.Upper	203	0	1	119	0	1
A.Staff	0	30	0	0	27	0
B	50	30	7	33	25	6
B.Renal	0	0	4	0	0	6
C	51	0	38	38	0	29
D	27	0	0	2	13	0
E	2	43	0	2	23	0
F	10	0	0	9	0	0
G	28	0	0	16	0	0
H	19	0	4	22	0	2
TOTALS	593	116	54	369	96	44
Total Occupancy	81%	90%	45%	50%	74%	37%

4.4.3.4 Evening (6:00 pm – 8:00 pm)

By the evening period occupancy levels of NRGH parking facilities are reduce substantially. Occupancy levels for both staff and public parking areas are less than 50%. As shown in **Table 4.12** (below), there is ample parking in every lot by 6:00 pm.

A breakdown of occupancy by parking lot and location can be found in **Appendix C, Figure C4**.

Table 4.12 - Parking Occupancy NRGH Parking Lots - Evening (6:00 pm – 8:00 pm)

Evening	6:00 PM			7:00 PM		
	Public	Staff	Other (Restricted)	Public	Staff	Other (Restricted)
A.Lower	60	2	0	44	3	0
A.Upper	51	0	1	42	0	1
A.Staff	0	20	0	0	18	0
B	18	19	3	30	27	3
B.Renal	0	0	6	0	0	5
C	19	0	13	18	0	13
D	4	0	0	5	0	0
E	2	16	0	2	16	0
F	6	0	0	5	0	0
G	15	0	0	13	0	0
H	14	0	3	14	0	5
TOTALS	189	57	26	173	64	27
Total Occupancy	26%	44%	22%	24%	50%	23%

4.4.3.5 Bicycle Parking

The NRGH currently has 130 bicycle parking spaces onsite at the hospital. Bicycle parking at the hospital includes:

- 12 individual paid bike lockers
- 35 Wall Hanging mounts in the indoor bike storage room
- 23 Wall Hanging mounts in the secure outdoor bike storage room 3 – 2 bicycle racks
- 5 – 4 bicycle racks
- 1 – 6 bicycle rack
- 4 – 7 bicycle racks

4.4.4 Summary

Table 4.13 (below) provides an overall occupancy summary for each of the NRGH parking lots for each time of the survey. This provides an overview of where parking is available at which times. In general, some lots were observed as having lower occupancy rates due to the presence of more restricted parking spaces (i.e. Lot D). Lots A, B, C, E and H were shown to have the highest occupancy rates throughout the day with all of these lots exceeding 85% occupancy in the mid-day period.

Table 4.13 - Parking Occupancy NRGH Parking Lots – Summary by Lot

Lot ID	7:00 AM	8:00 AM	9:00 AM	11:00 AM	12:00 PM	1:00 PM	3:00 PM	4:00 PM	6:00 PM	7:00 PM
A. Lower	21%	59%	95%	96%	91%	100%	95%	60%	27%	21%
A.Upper	29%	50%	87%	97%	93%	96%	91%	53%	23%	19%
A.Staff	100%	100%	100%	100%	100%	100%	94%	84%	63%	56%
B	39%	52%	59%	90%	85%	94%	85%	62%	39%	61%
C	40%	57%	75%	88%	84%	94%	76%	57%	28%	27%
D	18%	27%	41%	39%	53%	65%	53%	29%	8%	10%
E	74%	96%	100%	100%	100%	94%	85%	47%	34%	34%
F	0%	18%	46%	79%	86%	75%	36%	32%	21%	18%
G	11%	27%	44%	67%	69%	64%	51%	29%	27%	24%
H	33%	60%	87%	93%	93%	93%	63%	73%	47%	47%
Overall	32%	54%	79%	89%	87%	92%	82%	54%	28%	27%

5.0 PUBLIC CONSULTATION

Three rounds of community engagement sessions were held over the development of the Hospital Area Parking Strategy to gather comments from stakeholders and the public on the Hospital Area Plan and Parking Strategy. Each round of engagement sessions involved meetings with residents, hospital staff and other key stakeholders, as well as three open houses for the general public. A summary of meetings and consultation events is listed below:

Community Engagement Sessions #1

- Community Stakeholder Meeting #1 – June 20th, 2017
- Health Profession Stakeholder Meeting #1 – June 22nd, 2017
- Hospital Area Neighbourhood Association (HANA) Community Meeting – July 31st, 2017
- Online Survey #1 – June 22nd to August 25th, 2017

Community Engagement Sessions Round #2

- Community Stakeholder Meeting #2 (HANA and BC Transit) – December 5th, 2017
- Health Profession Stakeholder Meeting #2 (RDN and Island Health) - December 7th, 2017
- Open House #1 - December 7th, 2017
- Online Survey #2 - December, 2017 (closed December 30th)

Community Engagement Sessions #3

- Community Stakeholder Meeting #3 – April 10, 2018
- Health Profession Stakeholder Meeting #3 – April 11, 2018
- Open House #2 – April 11, 2018

Appendix D provides a detailed summary of feedback and opportunities discussed in relation to parking issues in the Hospital Area.

6.0 PARKING MANAGEMENT STRATEGIES

Public input and parking occupancy / turnover data was used to develop the following potential parking management strategies focused on balancing the short-term parking needs of visitors to the area and the long-term parking needs of residents and people traveling to the area for work. Moving forward, it is recommended that the City consider implementing new parking restrictions in two phases. This will allow the City to gradually introduce restrictions and evaluate the impact of these changes before extending parking restrictions further. This will help the City to determine the impact of new the restrictions, in particular how displaced parking customers adapt and whether or not this results in more long-term parking customers shifting over to residential streets with no parking restrictions. This will also help to determine whether or not parking restrictions are maximizing on-street parking amenities by increasing turn over and maintaining occupancy levels between 75 - 85%.

Overall, the logic behind the proposed parking restrictions can be broken down into four broad actions:

1. Implement Transportation Demand Management strategies and policies to reduce or redistribute travel demand to the hospital area. Critical to supporting this initiative is providing people traveling to and from the hospital area with viable alternatives to single occupancy vehicle travel, notably increasing transit frequency an efficiency to the areas, promoting ride sharing and carpooling and improving active transportation facilities to encourage more walking and cycling.
2. Keeping areas of unrestricted parking in areas where residents are less likely to be impacted. This includes on arterial streets near the hospital, adjacent to vacant spaces (i.e. open space and parkland), and space adjacent to underutilized institutional lands.
3. Implementing pay parking and two hour parking zones on arterial roads around the hospital (i.e. Boundary Avenue and Dufferin Crescent), particularly on the side of the street abutting the hospital property. This has been done to encourage more turnover and create space for short-term parking customers needing to use the hospital for appointments and visits.
4. Introducing two-hour resident exempt parking restrictions in residential areas close to the hospital, focusing on areas with high concentrations of single-family homes, particularly those areas with smaller single-family lots (i.e. Moyse Crescent, St. David Crescent, etc.). This has been done to create more short-term parking for people visiting the hospital for less than two- hours and to reduce parking conflicts between long-term parking customers travelling to the area for work and residents requiring on-street parking.

These four broad action have been translated into a series of specific parking management strategies broken into two phases of implementation. Recommended parking management strategies are outlined below and shown on **Figures 6.1 and 6.2.**

- ▶ Consider opportunities for developing an active transportation corridor on Dufferin. This would encourage more active transportation use in the area and as Dufferin connects through this section of the City and to the E & N Rail Trail. This will complement the current bike facilities on Boundary Avenue / Crescent and improve East-West cycling travel in the study area. This will likely be at the cost of some parking, but would potentially reduce vehicle travel and parking demand.

- ▶ Work with BC Transit to increase transit frequency and connectivity with the hospital area, importantly this initiative should account for the shift timing of hospital staff to ensure transit services line-up with staff schedules.
- ▶ For on-street parking areas on hospital frontages near key entrances consider implementing metered parking. Metered parking will enable the City to ensure parking turn-over and availability through pricing, which could actually eliminate the time limits, if the price is right.
 - In Phase 1.0 consider adding pay parking along the east side of Boundary Avenue between Nelson and Dufferin Crescent, and along north side of Dufferin Crescent between Boundary Avenue to the eastern intersection of Dufferin Crescent and Seafield Crescent.
 - In Phase 2.0, evaluate the occupancy and turnover levels for these sections of road with pay parking. If occupancy (85% +) levels remain high and turnover (2 hours +) levels remain low then consider increasing prices. If low turnover rates in the area continue to persist consider extending the pay parking area to the south side of Dufferin Crescent between Boundary Avenue to the eastern intersection of Dufferin Crescent and Seafield Crescent. If pay parking is not being utilized consider lowering parking costs or implementing further restriction in the surround area or a combination of both.
- ▶ In areas where pay parking is not established consider adding 2-hour maximum daily parking restrictions on non-residential sections of Dufferin Crescent and Boundary Avenue close to the hospital to encourage greater turnover. This should aim to provide additional short-term parking options near NRGH and the Emergency Department.
 - In Phase 1.0, focus 2-hour maximum daily parking restrictions on the south side of Dufferin Crescent between Boundary Avenue and eastern intersection of Dufferin Crescent and Seafield Crescent, across from the pay parking zone.
 - Consider adding some 2-hour maximum daily parking restrictions for small portions of the north side of Townsite Road between Bowen Road and Graham Crescent as visitor parking for new multi-family developments on this street.
 - In Phase 2.0, depending on how the parking circumstances have evolved consider converting the 2-hour zone on Dufferin into pay parking and adding two hour parking zones to non-residential parking sections on Dufferin Crescent and Boundary Avenue / Crescent close to the hospital area (i.e. leading up the intersection of Dufferin Crescent and Boundary Avenue / Crescent).
- ▶ Introduce 2-hour restrictions during the day on busier residential streets close to the hospital (i.e. Crestview, Nightingale and Nelson), with resident permit holders exempt from the time restriction. This should ensure sufficient parking available for residents while maintaining the on-street parking as a community amenity rather than something for the exclusive use of residents.
 - In Phase 1.0, apply these restrictions to residential streets that are in close proximity to the hospital and currently most impacted, including: portions of Crescent View Drive; Seafield Crescent, Nelson Street, Summerhill Place, Nightingale Crescent, Thunderbird Drive, St David Crescent, and Moyse Crescent.
 - In Phase 2.0, evaluate the current parking conditions on residential streets to determine whether or not the restrictions have been effective in managing parking in these areas. Importantly, this review should determine whether or not these restrictions have pushed long-term parking customers further into residential neighbourhoods. If areas with 2-hour resident exempt restrictions are shown to be underutilized (<75% occupancy) consider

increasing time limits or reducing the area covered by restrictions, especially if these restriction have be shown to be just shifting the problem further into the surrounding residential areas. If parking is shown to be optimized in the areas where these restrictions have been applied consider extending them into residential areas if parking in unrestricted residential areas is shown to be a problem.

- Key streets that should reviewed in the process of evaluating the need to implement further parking restrictions in residential areas surround the hospital include: Strathmore Street, Forest Drive, sections of Thunderbird Drive adjacent to areas where Phase 1.0 restriction have been implemented, and Waddington Road between Strathmore Street and Dufferin Crescent.
- ▶ Maintain existing unrestricted parking areas immediately around the hospital on non-residential streets and adjacent to vacant or open spaces. Residential areas further from NRGH should also be left as unrestricted in Phase 1.0.
 - In Phase 1.0, maintain unrestricted parking areas along the south side of Nelson Street between Boundary Avenue and Grant Avenue. Formalize unpaved parking areas on Grant Avenue between Dufferin Crescent and Strathmore Street to increase the efficient use of this spaces and leave this section as unrestricted. Leave Dufferin Crescent between Bowne Road and Boundary Avenue as unrestricted. Leave the west side of Boundary Avenue and both sides of Boundary Crescent as unrestricted. Leave the south side of Seafield Crescent as unrestricted.
- ▶ Coordinate parking management strategies with VIHA and explore options to increase parking supply on the NRGH site.
- ▶ Coordinate with VIHA to establish parking fees for NRGH that reflect the cost of on-street parking fees implemented by the City to encourage greater use of alternative modes of transportation.
- ▶ Encourage the hospital to provide free parking in evening hours, to encourage evening and late night staff to park on-site when the hospital parking lots are largely empty.
- ▶ Add additional enforcement patrols in daytime periods to ensure compliance.

The option of introducing evening / overnight (4 pm – 8 am) resident permit only parking for residential blocks closest to the hospital was also evaluated. Though this would ensure area residents with permits have access to parking in close proximity to their residences in the evening and overnight periods, it was not recommended for the following reasons:

- In the evening occupancies are 70% or less, so there isn't a true shortage of on-street parking.
- Some residents like resident only parking because they prefer to the parking in front of their house, however, other residents don't like it (especially when there is enough parking) since visitor permits would then be required to have guests to their homes.
- Residents don't like paying for a resident permit and administering resident parking permits is can be a large administrative burden for the city and resource intensive.
- Resident only Parking is ultimately for the benefit of the residents.
- Evening resident parking would require evening bylaw enforcement staff to back it up.

Figures 6.1 and 6.2 on the following page provide an overview of recommend parking restrictions in Phases 1.0 and 2.0.



Hospital Area Plan Parking Study

**Proposed
Parking Restrictions
Phase 1.0**

- Hospital Area Plan - Parking Study Area
- 2 hour parking (8AM to 5PM)
- 2 hour parking with Resident Permit Exempt (8AM to 5PM)
- Pay Parking (Current Downtown Rates - 8AM to 5PM)
- Maintain Existing Restrictions
- Unrestricted
- New Parkade - 150 spaces (\$5.00 per day) (est. 2019)
- Number of Parking Stalls



The accuracy & completeness of information shown on this drawing is not guaranteed. It will be the responsibility of the user of the information shown on this drawing to locate & establish the precise location of all existing information whether shown or not.



Coordinate System: NAD 1983 UTM Zone 10N
Scale: 1:8,000

Data Sources: Data provided by the City of Nanaimo, 2016-17.

Project #: 1296.0054.01
Author: LP
Checked: SH
Status: - DRAFT -
Revision: A
Date: 2018 / 5 / 25



FIGURE 6.1



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 2018/05/25 10:00 AM
 User: LP
 Plot Date: 2018/05/25 10:00 AM
 Plot Scale: 1:8000
 Plot Size: 11.00 x 11.00
 Plot Title: Hospital Area Plan Parking Study Phase 1.0

CITY OF NANAIMO
THE HARBOUR CITY



Hospital Area Plan Parking Study

**Proposed
Parking Restrictions
Phase 2.0**

- Hospital Area Plan - Parking Study Area
- 2 hour parking (8AM to 5PM)
- 2 hour parking with Resident Permit Exempt (8AM to 5PM)
- Pay Parking (Current Downtown Rates - 8AM to 5PM)
- Maintain Existing Restrictions
- Unrestricted
- Review Future Impact in Phase 2.0
- New Parkade – 150 spaces (\$5.00 per day) (est. 2019)
- Number of Parking Stalls

The accuracy & completeness of information shown on this drawing is not guaranteed. It will be the responsibility of the user of the information shown on this drawing to locate & establish the precise location of all existing information whether shown or not.



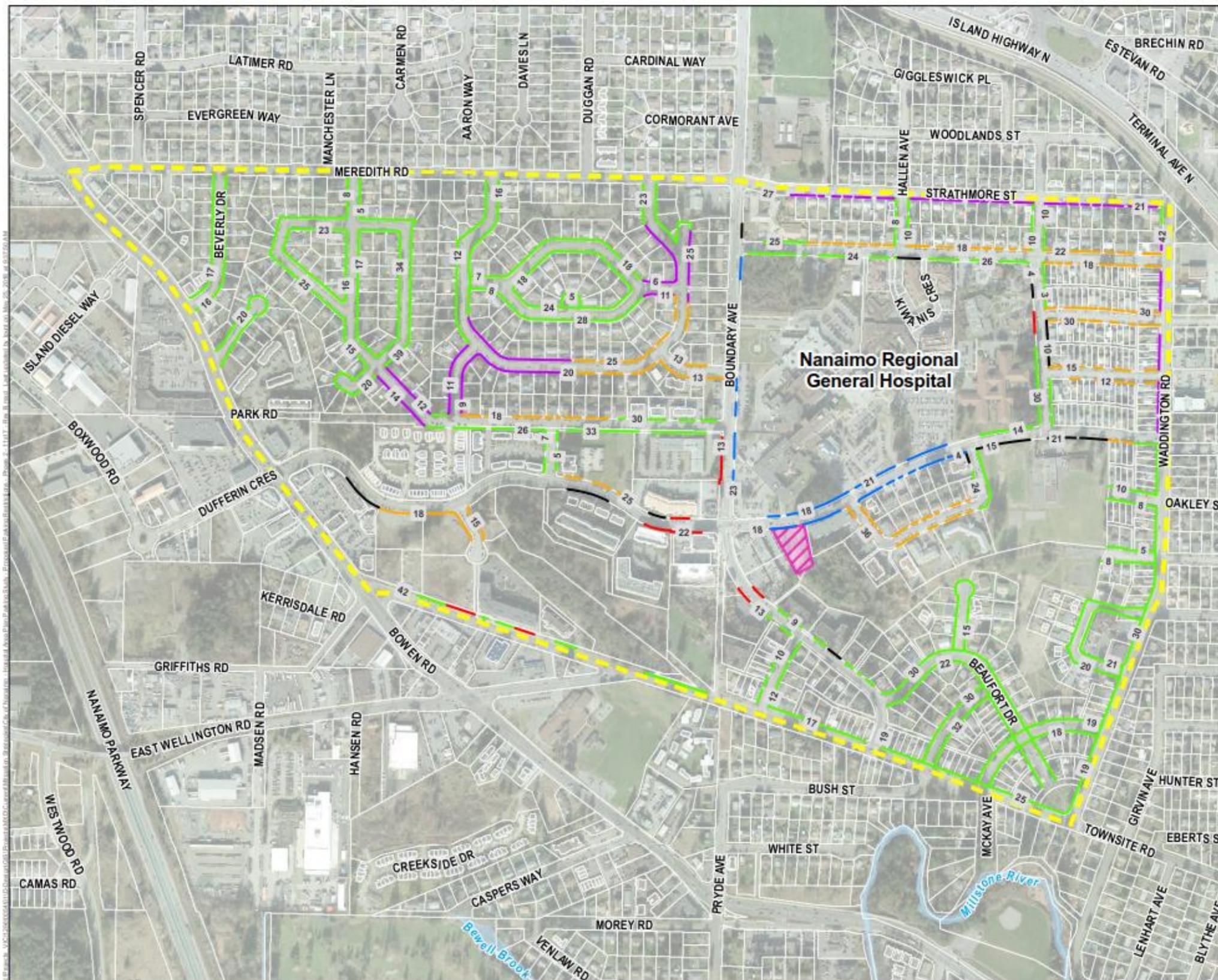
Coordinate System: NAD 1983 UTM Zone 10N
Scale: 1:6,000

Data Sources: Data provided by the City of Nanaimo, 2016-17.

Project #: 1296.0054.01
Author: LP
Checked: SH
Status: - DRAFT -
Revision: A
Date: 2018 / 5 / 25



FIGURE 6.2



As previously discussed, there are approximately 1812 spaces in the hospital study area. The proposed parking management strategies will result in parking restrictions being applied to approximately 430 spaces (23.7%) in Phase 1 and at least 550 spaces (30.4%) in Phase 2 (possibly more depending on the results of the follow-up parking studies). **Table 6.1** below provides a breakdown of the number of paid parking spaces, 2 hour spaces and 2 hour residential permit exempt spaces that will be created in each phase of this Parking Management Strategy.

Table 6.1 – Proposed Parking Restrictions by Number of Stalls (Phase 1 and 2)

Phase	Parking Restriction Type	Number of Spaces	Percent (%) of Total Inventory
Phase 1	Pay Parking (8 am – 5 pm)	62 spaces	3.4%
	2 Hour Parking (8 am – 5 pm)	52 spaces	2.9%
	2 Hour Parking Resident Permit Exempt (8 am – 5 pm)	316 spaces	17.4%
Total		430 spaces	23.7%
Phase 2	Pay Parking (8 am – 5 pm)	84 spaces	4.6%
	2 Hour Parking (8 am – 5 pm)	88 spaces	4.9%
	2 Hour Parking Resident Permit Exempt (8 am – 5 pm)	378 spaces	20.9%
Total		550 spaces	30.4%

7.0 IMPLEMENTATION

The following section provides some key considerations to support the implementation of this Parking Strategy and proposed parking restrictions outlined in **Figures 6.1** and **6.2** (above). This following sub-sections make high-level recommendations for the phasing-in of new parking restrictions, coordinating actions with the Hospital Area Plan, pay-parking technology, notifying hospital staff of upcoming changes to on-street parking, and enhancing alternative modes of transportation (transit, walking, and cycling).

7.1 Phasing of Restrictions

As discussed, in **Section 6.0** (above) it is recommended that the City consider implementing new parking restrictions in two phases to allow the City to evaluate the impact of the proposed changes before extending parking restrictions further. As shown in **Figures 6.1** and **6.2**, an initial set of restriction will be implemented shortly after the adoption of this strategy followed by a second set of restrictions to be implemented at a later date and based on a future review of parking conditions at that time.

7.1.1 Short-term

In the short-term it is recommended that Phase 1.0 restriction shown in **Figure 6.1** be implemented in 2018 after the adoption of this strategy. However, the City will be required to establish a resident permit parking system prior to implementing the resident permit exempt parking restrictions shown in **Figure 6.1**.

The impacts of Phase restrictions should be reviewed after approximately 6 - 8 months to determine their level of effectiveness and impacts on parking conditions. This should include and review of the core hospital area and streets identified for further review in **Figure 6.2**, as well as public feedback on parking conditions in the area. Upon the completion of the 6 – 8 month review if it is determined that further action is required to manage parking in the Hospital Area (i.e. consistent 85% plus occupancy on residential streets and ongoing complaints) the City should look to implement the Phase 2.0 restrictions prescribed in **Figure 6.2**.

Regardless of whether or not the City decides to proceed with the implementation of the Phase 2.0 restrictions it is recommended that a second post implementation review is carried out after a couple years to determine if those restriction implemented in Phase 1.0 are still working; and especially if public feedback continues to indicate a parking issue in the Hospital Area.

- Phase 1 – 2019
- Interim Review (6 – 8 months) - 2020
- Phase 2 – 2021 (if required)
- Post Implementation Review (2 Years) - 2022

7.1.2 Long-term

In the long term (> 5 years) it is suggested that the parking strategy be revisited and reviewed to incorporate changes in land use and development in the Hospital Area. This should look to evaluate how the Hospital Area has evolved in coordination with the broader Hospital Area Plan; as well as new development on the NRGH site. As this area of the City is expected to continue to grow, evolve and densify, further parking restrictions may be required to manage the impacts of this anticipated growth.

7.2 Coordination with the Hospital Area Plan and Hospital Area Transportation Plan

This is a standalone strategy, but should be coordinated with the Hospital Area Plan and Hospital Area Transportation Plan. As discussed, this area of the City is expected to continue to grow, evolve and densify in both the short-term and long-term. The population of the City of Nanaimo is 104,936 (2016 Census), an

increase of 7.1% since the 2011 Census (approximately 1.4% per annum). Nanaimo Regional General Hospital (NRGH) is the primary centre for health services in the Nanaimo region and beyond and is one of the City's largest employers. Surrounding the hospital campus is a mixed density residential neighbourhood and commercial development along the Bowen Road and Boundary Ave corridors.

This strategy was developed alongside the broader Hospital Area Plan from 2017 to 2018, which identifies parking management as a key challenge for this area of Nanaimo. Further the Hospital Area plan provides strong direction for how growth in this area of the City should occur, and notably highlights several locations where significant densification could occur. Moving forward, the Hospital Area Plan should be referenced when making future decisions around the provision of parking and implementation of future parking restrictions. Reversely, the City's planning regime should also acknowledge this parking strategy and future parking studies in regards to the application of minimum parking requirement under the zoning bylaw and the provision of parking variances for new multi-family developments.

In 2017, the City also developed a high level Transportation Plan for the Hospital Area. This plan outlined existing traffic conditions and provided a summary of pedestrian, cycling and transit facilities. This Hospital Area Transportation Plan also provided recommendations for how to improve transportation in this area Nanaimo, including the provision of more transit, cycling and walking infrastructure to encourage lower single occupancy vehicle use. The recommendations provided in the Hospital Area Transportation Plan should be considered in the implementation of the proposed parking restrictions in section 6.0 to ensure that as new parking restrictions are implemented they are coordinated with improvements to transit, pedestrian and cycling infrastructure.

7.3 Pay Parking

There are many costs associated with parking: infrastructure, maintenance, equipment, enforcement, upgrades, customer service applications, replacement, land acquisition, management and more. In order to achieve a self-funded parking system in the Hospital Area several actions should be undertaken to ensure parking pays for itself in accordance with **Guiding Principle #5**. Some key suggestions include:

- A sustainable parking reserve fund should be maintained to allow for new investments in technology or infrastructure.
- Parking fees in pay parking zones must account for the cost of appropriate enforcement to ensure fairness for all users.
- Efficient revenue collection will help to support the transportation system, save for future needs and reduce tax impacts.
- Adjust public parking rates to maximize the utilization of pay parking in the Hospital Area using an 85% occupancy target.
- Ensure that the annual fee for on-street residential parking permits accounts for the administration costs to operate the program.
- Make parking rates more flexible so the City can respond to changing demand for parking and to keep up with changing operation costs.
- Increase enforcement and fine structure to be more assertive toward repeat or frequent offenders. Monies collected through fines should go into the aforementioned parking reserve fund.

Another key consideration in the implementation of pay parking systems in the Hospital Area is the implementation of a convenient pay parking technology. Given the varied demands of parking customers in the hospital areas it is recommended that whatever pay parking technology that is implemented allows for a high degree of flexibility. Overall, it is recommended that the City consider multi-space meters and options for parking customers to pay by phone and online and add time remotely as needed. This will ideally eliminate the need for customers to return to their vehicle to add more time when required and reduce parking stress for people traveling to the hospital. There are a number of parking payment technologies that can be utilized to help streamline the payment process that are typically used in tandem with multi-

space meters, but are increasingly available on single space meters. Some examples of potential pay parking systems are shown in **Table 3.1** (below).

Table 3.1 Pay Parking Systems

Technology	Description	Image
<p>Multi-Space Pay and Display Meters</p>	<p>Pay and display meters allow drivers to purchase a “certificate” for paid parking time which can then be displayed on their dashboard to prove compliance. Since pay and display is typically done on a block or zone basis, this eliminates the need to paint individual stalls, which may increase the parking supply. This system could potentially be adapted to incorporate remote payment technologies (i.e. pay by cell phone – see below), to replace pay and display, which can be less convenient than pay-by-space stations because the driver must return to the car to place the certificate in the vehicle and again when the time has expired.</p>	
<p>Multi-Space Pay by Space Meters</p>	<p>Pay by space meters allow drivers to pay for parking by entering their specific space number into the pay station when paying, rather than by providing a receipt for display on the dashboard. These stations allow customers to continue shopping or choose to stay for dinner without requiring drivers to return to their vehicle as time extensions can be paid remotely (i.e., another station, by cell phone, etc.). This technology is also available in a pay by license plate variant that is becoming increasingly common as it has inherent benefits for enforcement, as well as being user friendly.</p>	
<p>Pay by Cell Phone</p>	<p>Paying for parking by cell phone is a strategy that allows customers to pay without cash while eliminating the need to install new credit-card capable revenue collection infrastructure on the street. The strategy allows people to receive text messages notifying them that their time is about to expire as well as extend legal parking time by paying remotely. Additionally, upon returning to their vehicle, a person may terminate the parking session and avoid paying for time that will not be used.</p>	
<p>Smart Cards</p>	<p>Smart cards represent another alternative payment system for metered parking that eliminates the need to carry cash without using credit cards. Smart cards are stored-value cards that can be inserted in the meters to add time. Users insert the card when they first arrive at the meter and allow the meter to increase the time increment purchased in \$0.25 steps; users remove the card when the amount of time displayed is adequate. Users are billed only for the time actually spent parking – rounded to the nearest minute by swiping the card again when they leave the space.</p>	
<p>In-Car Meters</p>	<p>In-car meters are small devices which are loaded with pre-paid parking time. The user displays the meter in their car, often on the dashboard or hanging from the rear-view mirror, and activates the device when parked at a metered space. The digital display counts down the amount of paid parking time remaining, allowing a parking enforcement officer to see through the window that the car is legally paying for the parking time.</p>	

Overall, the use of multi-space meters and any of the complementary payment options discussed above, increase the ease of payment from the user perspective which in turn increases the likelihood that users will pay for the time they spend using a given parking space rather than take their chances with the possibility of receiving a citation for non-payment. Further, from the enforcement perspective these

technologies are likely to increase monitoring efficiency by eliminating the need to physically check the meter at each individual parking space.

Current on-street paid parking systems utilized by the City of Nanaimo in the downtown area have shown to be effective tools. Presently, one parking machine covers approximately 10 spaces in the downtown. If similar efficiencies were realized in the hospital area it is estimated that between 6 and 8 units would be required in Phase 1 and 8- 10 units would be required in Phase 2. The approximate cost of each units is between \$12,000 and \$15,000. A breakdown of paid parking implementation costs are provided below in Section 7.8 – Implementation Costs.

7.4 Notice to Hospital Staff

Prior to the implementation of Phase 1.0 parking restrictions shown in **Figure 6.1**, it is recommended that hospital staff and residents are notified of the upcoming parking changes. This will allow parking customers to prepare for the upcoming changes to parking restrictions and possibly find alternative to on-street parking. Residents living near resident permit exempt parking areas should be notified of new parking restrictions by mail at least one month in advance to allow them time to register permits for their vehicles. Hospital staff and other residents travelling to the area for work should also be given at least two weeks of notice prior to the implementation of Phase 1.0 parking restrictions. Notifications and information regarding the proposed parking restrictions should be provided to all businesses and employers in the study area, and should include the day and time the proposed restrictions will come into effect; it may also be helpful to include a map in this information package showing the location of proposed restrictions. In addition to notices sent directly to residents and employers notification signs should also be posted in the study area on streets for two weeks where parking restrictions are due to be imposed. These notification signs could be posted on newly installed sign poles that will eventually host the parking restriction signage.

7.5 Parking Signage

Signage will be another key consideration for the implementation of the proposed parking restrictions. Signage will be required throughout the study area to notify the public of what restrictions apply and where. Based on sightlines and the spacing of parking restrictions it is estimated that between 65 and 75 signs will be required to implement Phase 1 with an additional 20-25 signs required to implement Phase 2. The estimated cost of each sign is approximately \$250, a proposed budget for signage is outlined below in Section 7.8 – Implementation Costs.

7.6 Transit

In general, focusing on parking restrictions alone will not achieve a balanced transportation system. It is critical to consider the role of other modes of transportation in reducing single occupancy vehicle travel and parking demand. The Hospital Area Transportation Plan completed in 2017 suggests increasing transit services to the Hospital Area will play an important role in reducing the demand for parking, both on and off street, as well as supporting future growth and development in this area of Nanaimo.

There are currently two bus routes that operate within the study area (see **Figure 7.1** below):

- Route 30 -NRGH local route,
- Route 40 -VIU Express, and
- Route 50 - Downtown /Woodgrove.

Route 30 is a local route which uses a variety of local roads to travel between Woodgrove Centre and Prideaux Bus Exchange downtown via Nanaimo Regional General Hospital. It generally operates every 30 to 60 minutes. There are 3 to 4 stops along the hospital frontages on Dufferin Crescent and Boundary Avenue in each direction. Route 40 is a much more direct route also travelling between Woodgrove Centre

and Prideaux Bus Exchange. It is a frequent route with generally 15 to 30-minute service. It travels along the edge of the study area on Bowen Road.

Currently, there is significant demand for enhanced transit services in this area of the City and BC Transit needs to play a role in this process. Public feedback through this process has suggested that there is currently lack of transit services in this area. As part of the online survey less than 20 percent of respondents indicated that transit met their transportation needs which suggests there are significant opportunities to make improvements and make transit a more appealing transportation option. The Hospital Area Transportation Plan provides several key recommendation for improving transit in the Hospital Area, including:

- **Bus Schedule and Routing** - Explore opportunities to provide more frequent and direct transit service to the Hospital and examine potential changes to the transit schedule that would better serve hospital staff. In particular, the frequency for Bus 30 should be increased to 15 minute intervals for peak hours (i.e. 7 am – 9 am, 12 pm – 1 pm, and 3 pm – 5 pm). The schedule for Bus 30 should also be adjusted so this bus starts earlier from downtown at 6 am (currently starts at 7 am) as this will better align with hospital shift start times. Bus 50 on Island Highway is scheduled to become rapid bus route. The existing bus stop close to Oakley Street should be relocated closer to Nelson Street so it is closer to walk to NRGH.
- **Bus Stops** - Provide clean, safe and lit bus shelters with consideration to Crime Prevention Through Environmental Design (CPTED) principles at key stops such as those adjacent to the hospital. Add bus shelters to the Bus 30 stops both northbound and southbound at Boundary and Nightingale Crescent.
- **On-Site Bus Stop at Hospital** – In the long-term examine the feasibility of locating a bus stop on the hospital site to encourage staff/patients to take transit for trips to/ from hospital. This would likely have to be undertaken during a renewal or redevelopment of the hospital drop-off loop off Dufferin Crescent as the current configuration has limited additional space to add a transit stop. Moving forward, the convenience to transit passengers boarding or alighting at the hospital should be weighed against the increased travel time for passengers who do not board or alight at the hospital.



Hospital Area Plan Parking Study

Transit Routes

- Hospital Area Plan - Parking Study Area
- Transit Stop
- Route 30
- Route 40
- Route 50



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Coordinate System:
NAD 1983 UTM Zone 10N

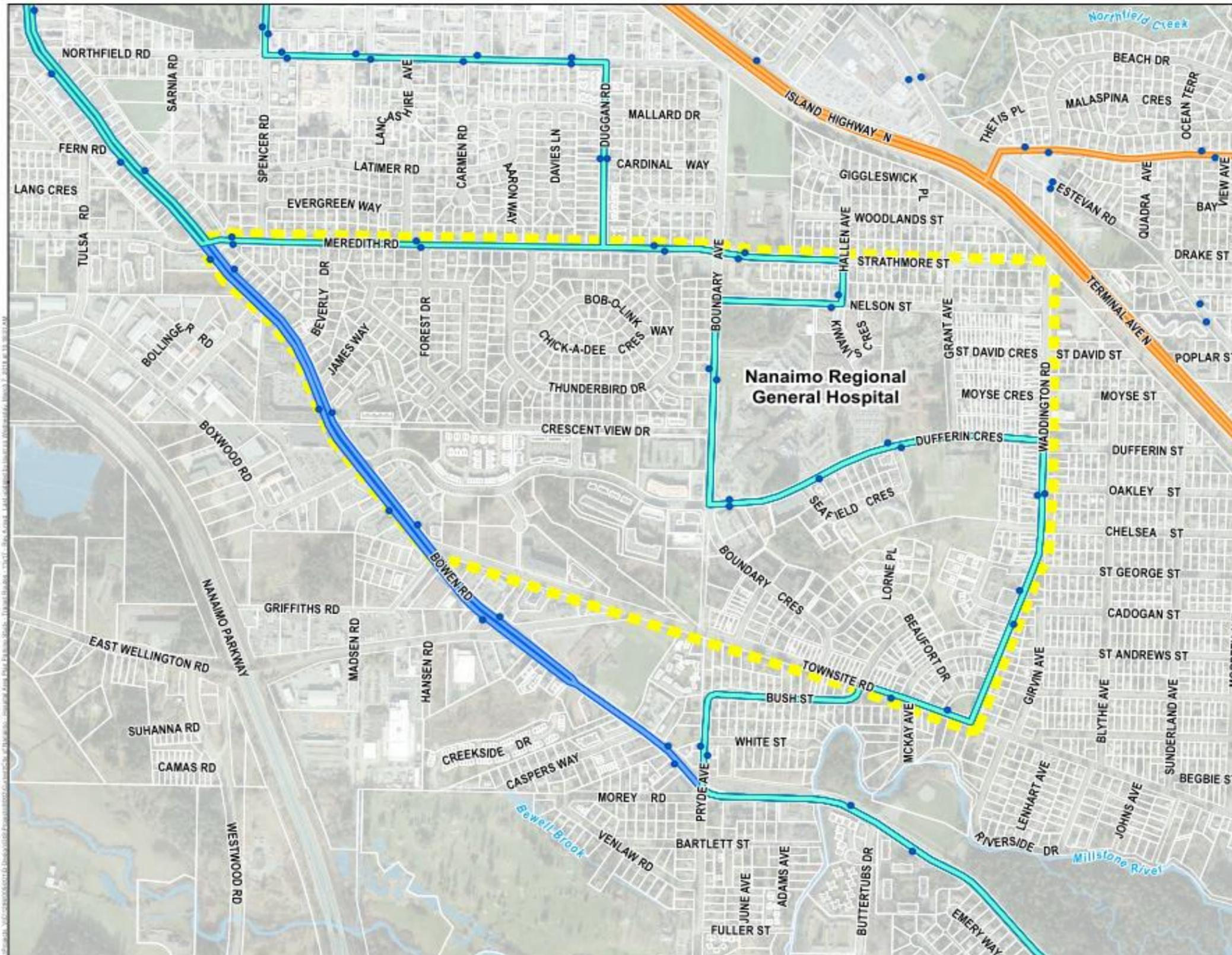
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Data Source:
Data provided by the City of Nanaimo, 2016-17.

Project #: 1296.0054.01
Author: LP
Checked: SH
Status: - DRAFT -
Revision: A
Date: 2016/3/7



FIGURE 7.1



7.7 Cycling and Walking

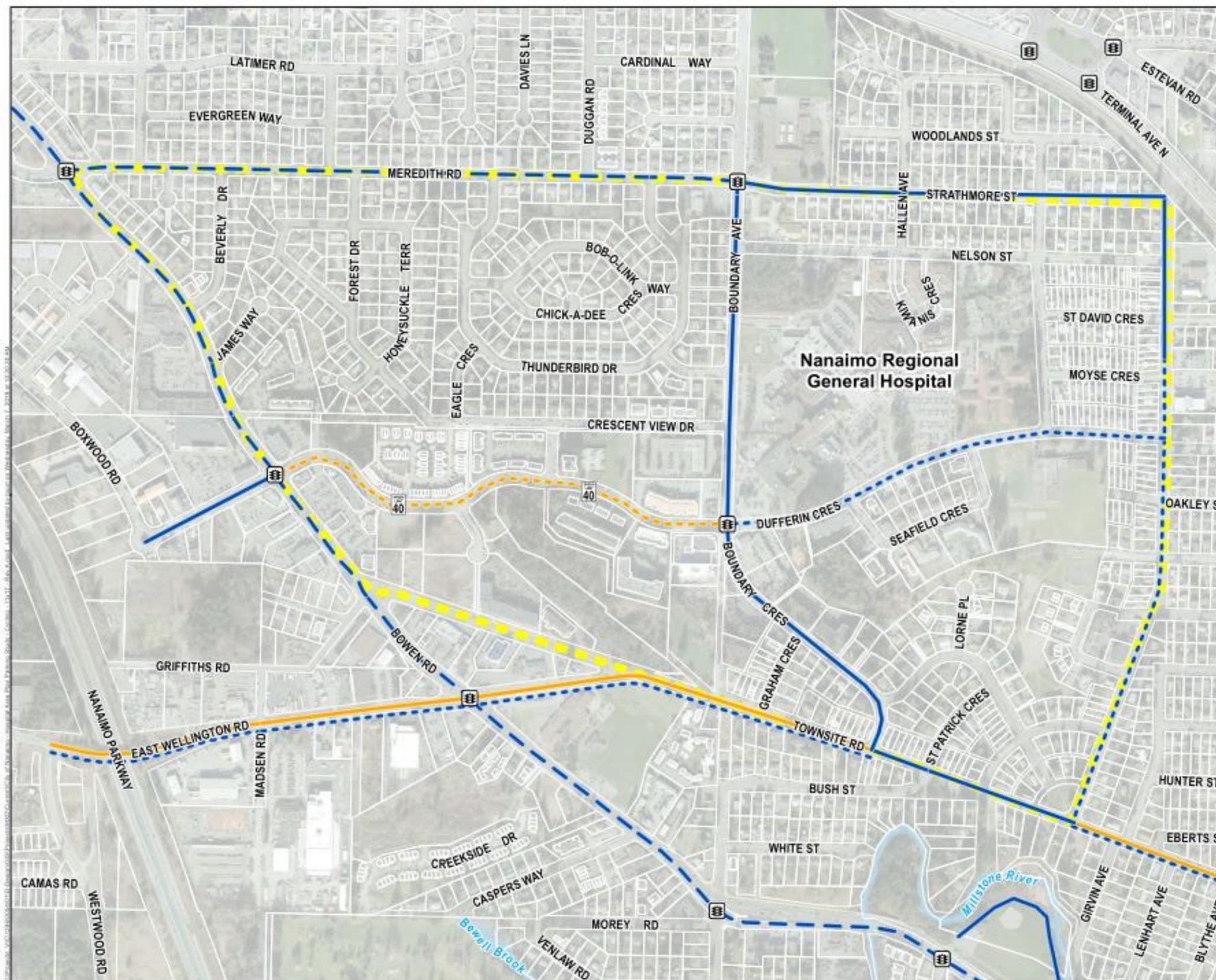
Improving cycling and walking infrastructure will also be an important step in managing parking demand in the Hospital Area, however, providing infrastructure is always a balance between modes in a constrained space.

The Hospital Area Transportation Plan highlights a number of transportation and utility upgrades within the study area completed in 2015. The transportation upgrades consisted of pedestrian facility improvements and the addition of dedicated cycling facilities on Bush Street, Pryde Avenue, Townsite Road, Boundary Crescent and Boundary Avenue. Currently, most streets have a sidewalk on at least one side and marked crosswalks at intersections

The City of Nanaimo Transportation Master Plan identifies a more extensive cycling network for the future with a combination of on-street bike lanes and shared use lanes. The City has expedited the plan to upgrade pedestrian facilities and add a sidewalk along Dufferin Crescent west of the intersection of Boundary Road and Dufferin Crescent to Bowen Road. **Figure 7.2** (below), shows the existing and future cycling network planned for the study area based on the City of Nanaimo's Transportation Master Plan, as well as plans to add a bike lane on Dufferin Crescent east of the intersection of Boundary Avenue and Dufferin Crescent. The City will also be reducing speeds to 40 km /h and adding a bike sharrow to Dufferin Crescent to the west of the intersection of Boundary Avenue and Dufferin Crescent. These projects could substantially increase cycling access to Hospital Area and encourage greater uptake of cycling for people working in the area.

Moving forward, despite recent improvements within the study area such as the bike lane on Boundary Avenue, feedback from public during engagement session has shown that there is still a lack of pedestrian and cycling infrastructure in the Hospital. Participants noted that the lack of curbs and sidewalks exacerbates on-street vehicle parking problems near driveways and intersections. Participants also stated that pedestrians have safety concerns because of congested streets, busy roads, and lack of pedestrian infrastructure in the Hospital Area. Therefore, the Hospital Area Transportation Plan has noted the following as suggestions to address safety issues with active transportation:

- Provide secure and convenient bicycle storage, showers, etc. in new hospital area developments to incentivize cycling and cycle-commuting in the Hospital Area.
- Evaluate the function of the Boundary Avenue cycling lane and in the long-term modify the design to make the cross section more uniform and enhance the perception of safety by making the route more consistent.
- Evaluate the existing infrastructure in the Hospital Area and develop and implement a plan to replace infrastructure as curbs and sidewalks are currently not constructed to accommodate walkers / disabled people.
- A plan should be developed to implement sidewalks and cycling facilities on neighborhood collectors streets and higher.
- Improve pedestrian safety at the intersection of Dufferin Crescent and Boundary Road. Two options were suggested:
 - Traffic lights should be programmed with longer walk-times, or
 - Traffic lights should be programmed with all-way vehicle stop to allow more pedestrian movements.
- Install lighted crosswalks to encourage pedestrian movements in the Hospital Area, especially along Dufferin Crescent



Hospital Area Plan Parking Study

**Hospital Area
Existing and Future
Cycling Network**

- Hospital Area Plan - Parking Study Area
- Signalized Intersections
- Shared Use Lane**
 - Existing
 - Proposed Short Term Priority
- Bicycle Lane**
 - Existing
 - Proposed Medium to Long Term Priority
 - Proposed Short Term Priority



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0 37.5 75 150 225
Metres

Coordinate System: NAD 1983 UTM Zone 10N
Scale: 1:8,000

Data Sources:
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Project #	1296.0064.01
Author	LP
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Revision	A
Date	2018 / 3 / 7

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FIGURE 7.2

7.8 Implementation Costs

The following section provides some high-level estimates for implementation costs for Phases 1 and 2. These costs are broken into three categories – signage, pay parking and enforcement as outlined below.

7.8.1 Signage

The cost of signage is based on the number of signs required in each phase. It is estimated that between 65 and 75 signs will be required in phase 1. At an average cost of approximately \$250 per sign between \$16,250 and \$18,750 will be required to implement phase 1 signage. It is estimated that an additional 20-25 signs will be required to implement phase 2 at an additional cost of \$5,000 - \$6,250. The total estimate cost for signage for both phases is between \$21,250 and \$25,000.

7.8.2 Pay Parking

As discussed above, one parking machine covers approximately 10 spaces in the downtown. Therefore, it is estimated that between 6 and 8 units would be required in Phase 1 and 8- 10 units would be required in Phase 2. Given the estimated cost of between \$12,000 and \$15,000 per unit (plus \$1,500 for initial set-up costs) the implementation cost for pay parking will range between \$73,500 and \$121,500 in phase 1 with an additional two units required for phase 2 (\$24,000 - \$30,000). The total cost for pay parking infrastructure is between \$97,500 and \$151,500 for both phases.

Further, it is anticipated that the costs of maintenance and collection for the machines will be about \$1200 per year for each machine. This has been incorporated into the overall costs of implementing pay parking.

7.8.3 Enforcement

The costs of enforcement is a little more challenging to estimate due to the effects of the proposed parking restriction not being fully known at this time. However, based on existing information and previous feedback from City of Nanaimo Bylaw staff it is estimated that it will take approximately 900 - 1200 of additional man hours per year (0.5 to 0.66 full-time employee) to enforce the proposed parking restrictions. This equates to a cost of approximately \$40,000 - \$53,000 annually based on an annual full-time employee cost of \$80,000 for salary and benefits.

The cost of enforcement also includes \$35,000 to cover vehicle costs associated with enforcement around the hospital. This is based on estimates provided by the City's Bylaw Enforcement team.

Parking Revenue and Payback

The total parking revenue from phase 1 paid parking is estimated at \$126,945 a year with 62 spaces operating at 70% occupancy for a cost of \$1.25 per hour. In phase 2 this increases by 35% to \$171,990 with 84 spaces. This assumes 70% occupancy for weekdays 8 am to 5 pm. Further, as there will be increased bylaw enforcement in this area it is anticipated that additional revenue will be collected through fines. This is estimated at \$8,250 annually in phase 1 and \$11,000 annually in phase 2 for pay parking areas, as well as \$1,500 annually in the 2 hour and 2 hours resident only parking areas.

The implementation costs for signage and pay parking infrastructure are between \$118,750 and \$176,500; the estimated increase in enforcement costs is \$40,000 - \$53,000 annually plus \$35,000 in vehicle costs. Again, there is an estimate annual maintenance and collection cost of \$1,200 per machine. The total costs for implementing the Parking Strategy over the next four years is outlined in **Table 7.2 below**. These costs include signage, parking technology, maintenance and collection and enforcement, as well as costs for completing two follow-up parking occupancy / turn-over studies.

Table 7.2 – Estimated Implementation Costs

Phase	Year	Expense	Estimated Cost Range (\$)
Phase 1	2019	Signage	\$16,250 - \$18,750
		Pay Parking Metres	\$73,500 - \$121,500
		Enforcement Vehicle	\$35,000
Interim Review	2020	Parking Study	\$20,000 - \$30,000
Phase 2	2021	Signage	\$5,000 - \$6,250
		Pay Parking Metres	\$24,000 - \$30,000
Post Implementation Review	2022	Parking Study	\$20,000 - \$30,000
Enforcement Costs	2019-2022	Enforcement Costs (4 years)	\$160,000 - \$212,000
Total Implementation Costs	2019 - 2022		\$353,750 - \$483,500

Given the proposed timelines for the implementation of this Parking Management Strategy this section outlines a high-level cash flow analysis for each phase over a five year period (see **Table 7.3** below). Note this assumes parking cost remain the same at a \$1.25 per hour.

Table 7.3 – Hospital Parking Estimated Cash Flow (2019 -2023)

Year	Costs Low End (\$)	Costs High End (\$)	Revenue (\$)	Gain / Loss (\$) (+/-) (Low End)	Gain / Loss (\$) (+/-) (High End)
Year 1	\$171,950	\$237,850	\$136,695	-\$35,255	-\$101,155
Year 2	\$67,200	\$92,600	\$136,695	\$34,240	-\$57,060
Year 3	\$78,600	\$101,250	\$184,490	\$140,130	\$26,180
Year 4	\$69,600	\$95,000	\$184,490	\$255,020	\$115,670
Year 5	\$49,600	\$65,000	\$184,490	\$389,910	\$235,160

The cash flow analysis outlined in **Table 7.3** shows that the estimated parking revenue will cover the cost of implementing the Hospital Area Parking Strategy and that after 5 years the City could be turning a profit of \$119,490 to \$134,890 a year - assuming no change in parking and enforcement costs.

Moving forward, it is recommended that any surplus revenues resulting from the implementation of pay parking in the Hospital Area be allocated to a fund to improve other components of the transportation system in the area (i.e. cycling facilities, sidewalks and transit shelters).

8.0 SUMMARY

The results of this analysis showed high parking occupancy levels for on-street parking areas immediately adjacent to the hospital during morning and afternoon time periods; streets not immediately adjacent to the hospital were generally shown to have ample parking. Off-street parking operated by the NRGH was also shown to have very high occupancy levels during late morning and early afternoon periods. This peak period (late morning and early afternoon) of parking demand where parking on both the hospital site and streets adjacent to the hospital frequently exceeds 85% occupancy begins to subside around 3:00 pm.

The turnover analysis revealed that parking duration varied, with a significant number of people parking for the entire day and a large contingent parking for two hours or less.

This pattern of parking demand generally supports informal observations offered by residents and hospital staff, which suggests a large portion of on-street parking is occupied by hospital staff during the day, as well as hospital visitors attending clinics or visiting patients.

Parking management strategies presented in **Section 6.0** (shown on **Figure 6.1** and **6.2**) highlight a range of solutions with a specific focus on managing periods of peak demand and implementing restrictions to encourage more turnover during the day and to encourage hospital staff to park in NRGH facilities after 3:00 pm when the hospital parking lots start to clear out.

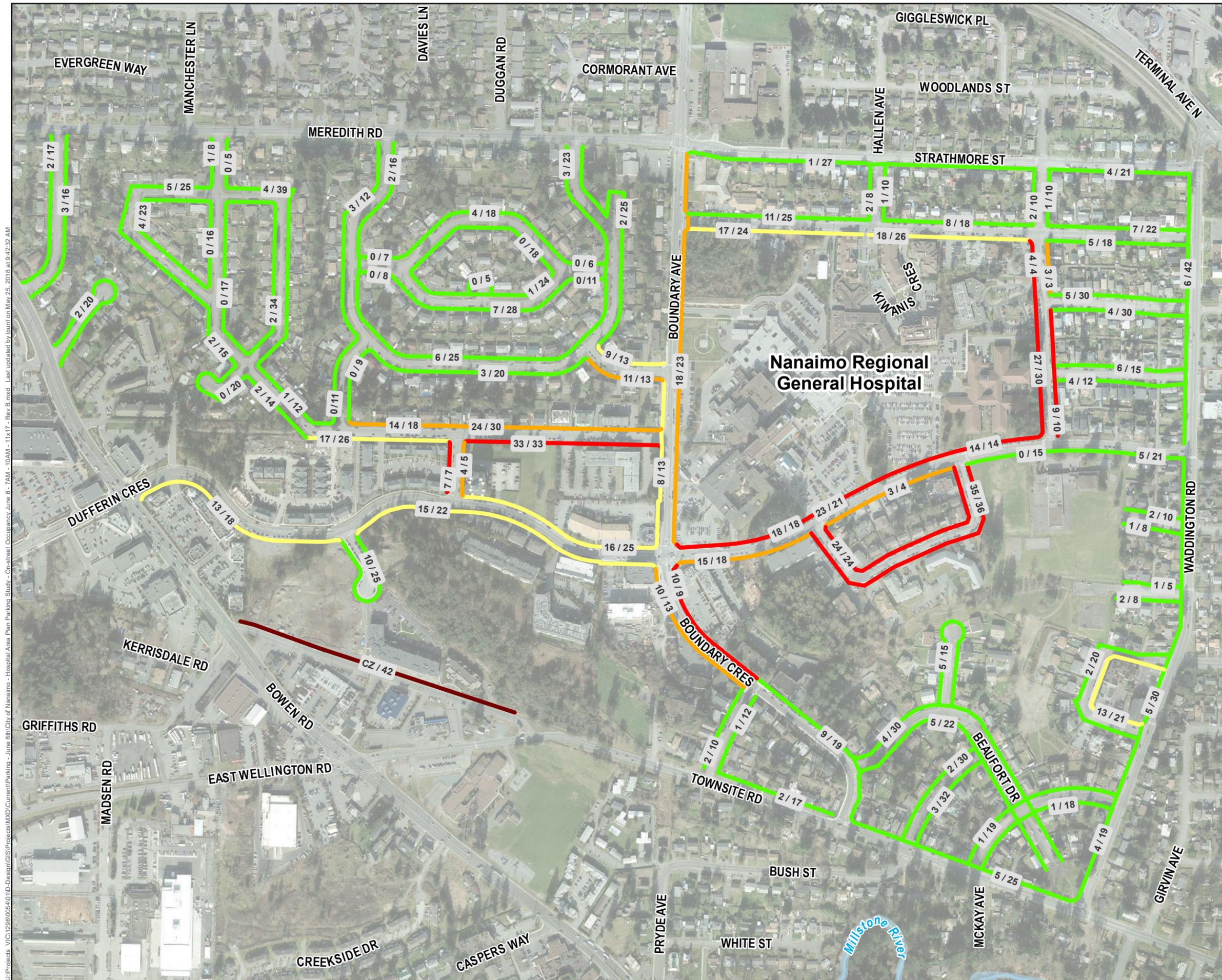
The parking management strategies presented in **Section 6.0** are supported by the implementation plan outlined in **Section 7.0** of this document. This suggests that prior to implementing the proposed parking management strategies shown on **Figure 6.1** and **6.2** that consideration be given to improving transit, pedestrian and cycling facilities in the Hospital Area. Notably, increasing transit service and a frequency will be key to realizing parking management in this area. Further, the implementation outlines some key consideration for implementing new parking restrictions, such as notifying employer and residents of the changes, determining pay parking system option and creating and plan for the phasing and monitoring of parking management strategies in the area.

Importantly, the high-level cost estimates for implementing this parking management strategy were shown to be between \$193,750 and \$271,500 for signage, parking meters, an enforcement vehicle, follow-up studies etc., plus between \$40,000 and \$53,000 more per year for enforcement. Given the projected revenue of \$136,695 in phase 1 and \$184,490 in phase 2 the costs of implementing the parking management strategy could be recovered within the first three years.

APPENDIX A

Parking Supply and Demand
Occupancy Summary maps

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Hospital Area Plan Parking Study

On-street Parking Occupancy
Thursday June 8th
7 am - 10 am

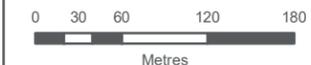
Legend

Existing Occupancy

- 0% - 50%
- 51% - 70%
- 71% - 85%
- 86% - 100%
- Construction Zone Daytime Occupancy



The accuracy & completeness of information shown on this drawing is not guaranteed. It will be the responsibility of the user of the information shown on this drawing to locate & establish the precise location of all existing information whether shown or not.



Coordinate System: NAD 1983 UTM Zone 10N
Scale: 1:5,000

Data Sources: Data provided by the City of Nanaimo, 2016-17.

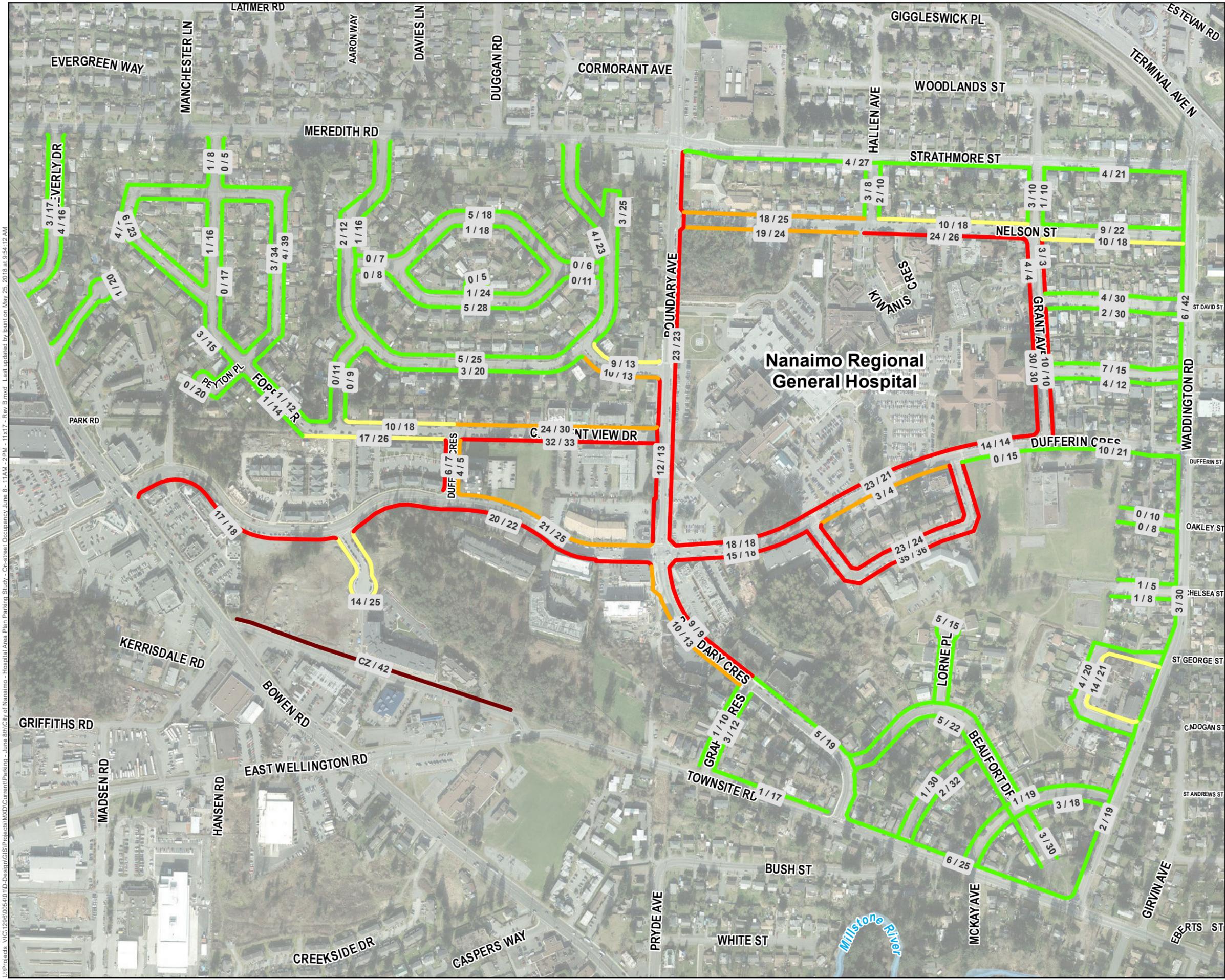
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Author: LP
Checked: MB
Status: ~DRAFT~
Revision: A
Date: 2018 / 5 / 25



FIGURE A1

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Hospital Area Plan Parking Study

On-street Parking Occupancy
Thursday June 8th
11 am - 2 pm

Legend

Existing Occupancy

- 0% - 50%
- 51% - 70%
- 71% - 85%
- 86% - 100%
- Construction Zone Daytime Occupancy



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0 30 60 120 180
Metres

Coordinate System: NAD 1983 UTM Zone 10N
Scale: 1:5,000

Data Sources:
Data provided by the City of Nanaimo, 2016-17.

Project #: 1296.0054.01
Author: LP
Checked: MB
Status: ~DRAFT~
Revision: A
Date: 2018 / 5 / 25

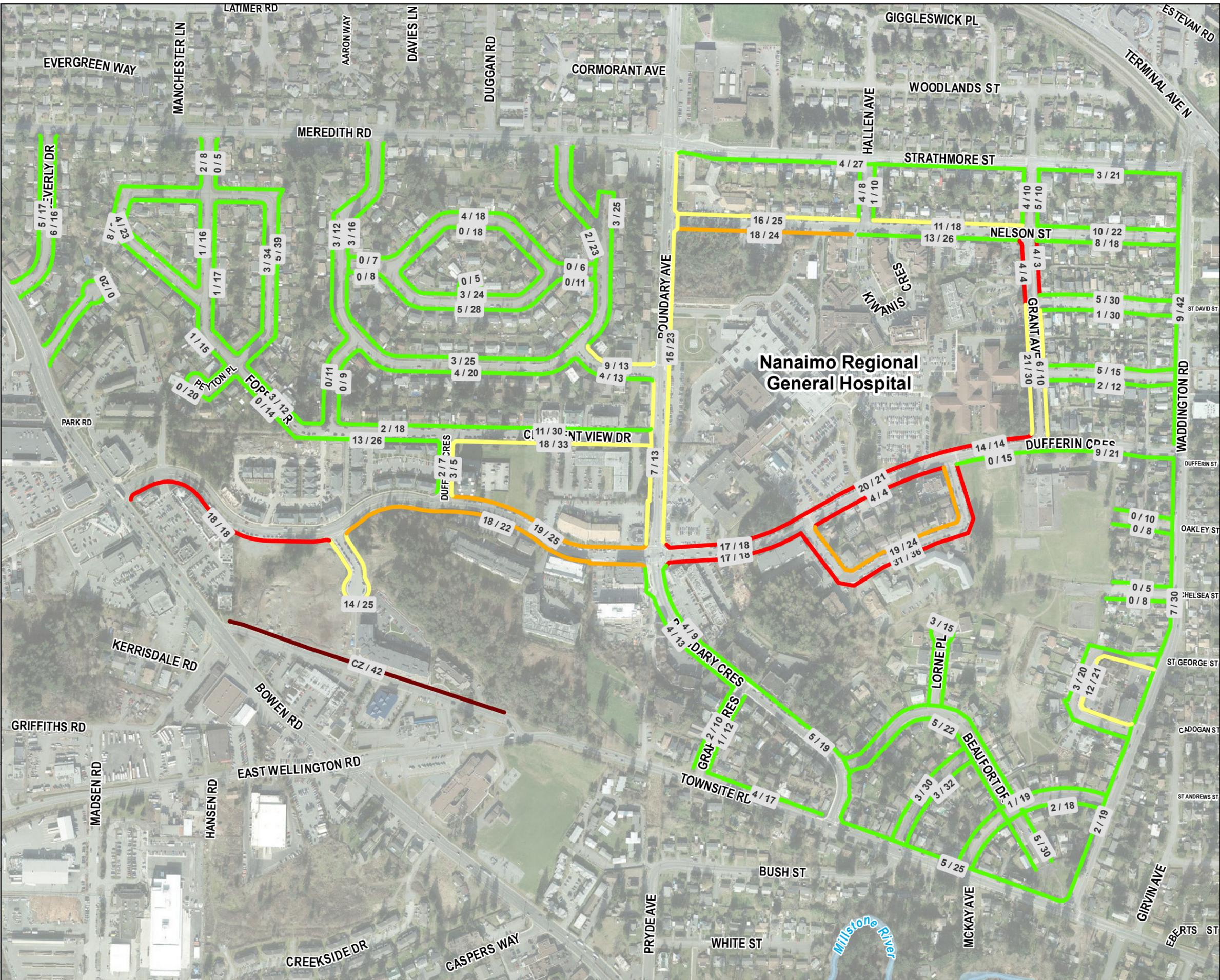
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FIGURE A2

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Hospital Area Plan Parking Study

On-street Parking Occupancy
Thursday June 8th
3 pm - 5 pm

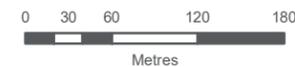
Legend

Existing Occupancy

- 0% - 50%
- 51% - 70%
- 71% - 85%
- 86% - 100%
- Construction Zone Daytime Occupancy



The accuracy & completeness of information shown on this drawing is not guaranteed. It will be the responsibility of the user of the information shown on this drawing to locate & establish the precise location of all existing information whether shown or not.



Coordinate System: NAD 1983 UTM Zone 10N
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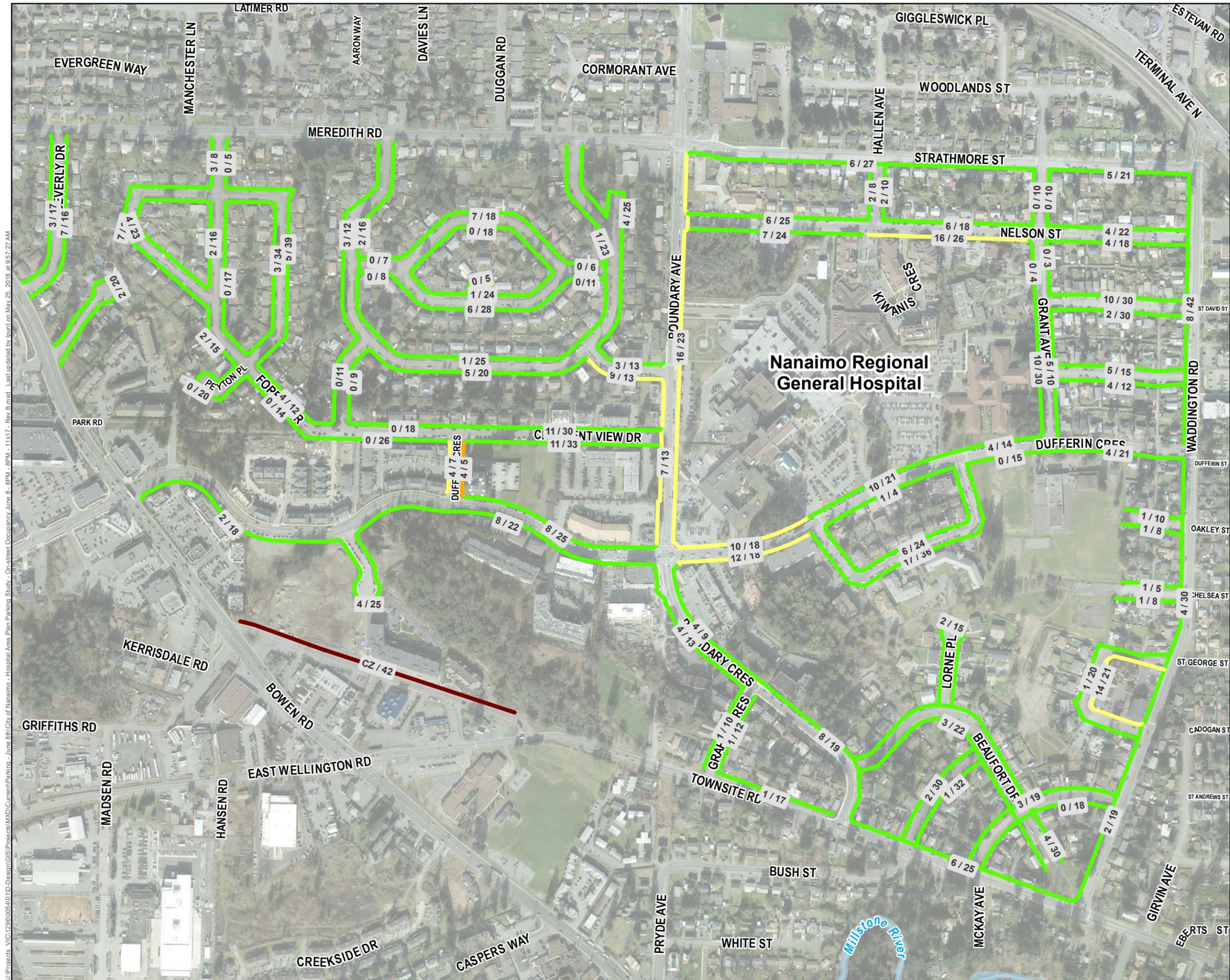
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Project #: 1296.0054.01
Author: LP
Checked: MB
Status: **~ DRAFT ~**
Revision: A
Date: 2018 / 5 / 25



FIGURE A3

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Hospital Area Plan Parking Study

On-street Parking Occupancy
Thursday June 8th
6 pm - 8 pm

Legend

Existing Occupancy

- 0% - 50%
- 51% - 70%
- 71% - 85%
- Construction Zone Daytime Occupancy



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Coordinate System: NAD 1983 UTM Zone 10N
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Data Sources: Data provided by the City of Nanaimo, 2016-17.

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Checked: MB
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Revision: A
Date: 2018 / 5 / 25

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FIGURE A4

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APPENDIX B

On-Street Turnover Summary Maps

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Hospital Area Plan Parking Study

On-street Parking Turnover
September 21, 2017
8 AM - 12 PM

- Legend
- Average Length of Vehicle Stay (hours)
- 2 Hours or Less
 - 2 to 2.5 Hours
 - 2.5 to 3 Hours
 - Greater than 3 Hours



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0 30 60 120 180
 Metres

Coordinate System: NAD 1983 UTM Zone 10N
 Scale: 1:5,000

Data Sources:
 Data provided by the City of Nanaimo, 2016-17.

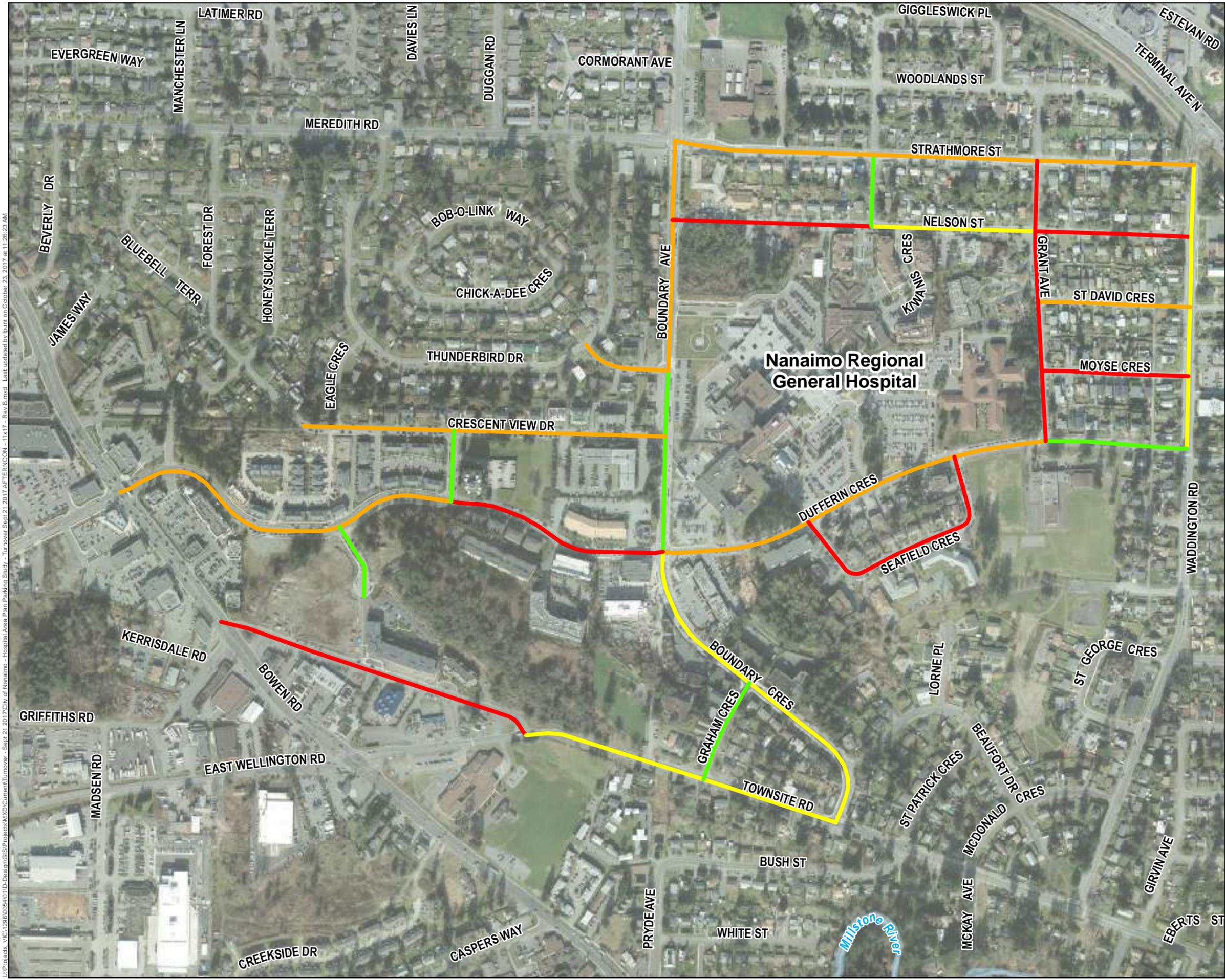
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Author:	LP
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Status:	- DRAFT -
Revision:	A
Date:	2017 / 10 / 23



FIGURE B1

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Hospital Area Plan Parking Study

On-street Parking Turnover
September 21, 2017
1:30 PM to 3:30 PM

- Legend
- Average Length of Vehicle Stay (hours)
- 2 Hours or Less
 - 2 to 2.5 Hours
 - 2.5 to 3 Hours
 - Greater than 3 Hours



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Coordinate System: NAD 1983 UTM Zone 10N
 Scale: 1:5,000

Data Sources: Data provided by the City of Nanaimo, 2016-17.

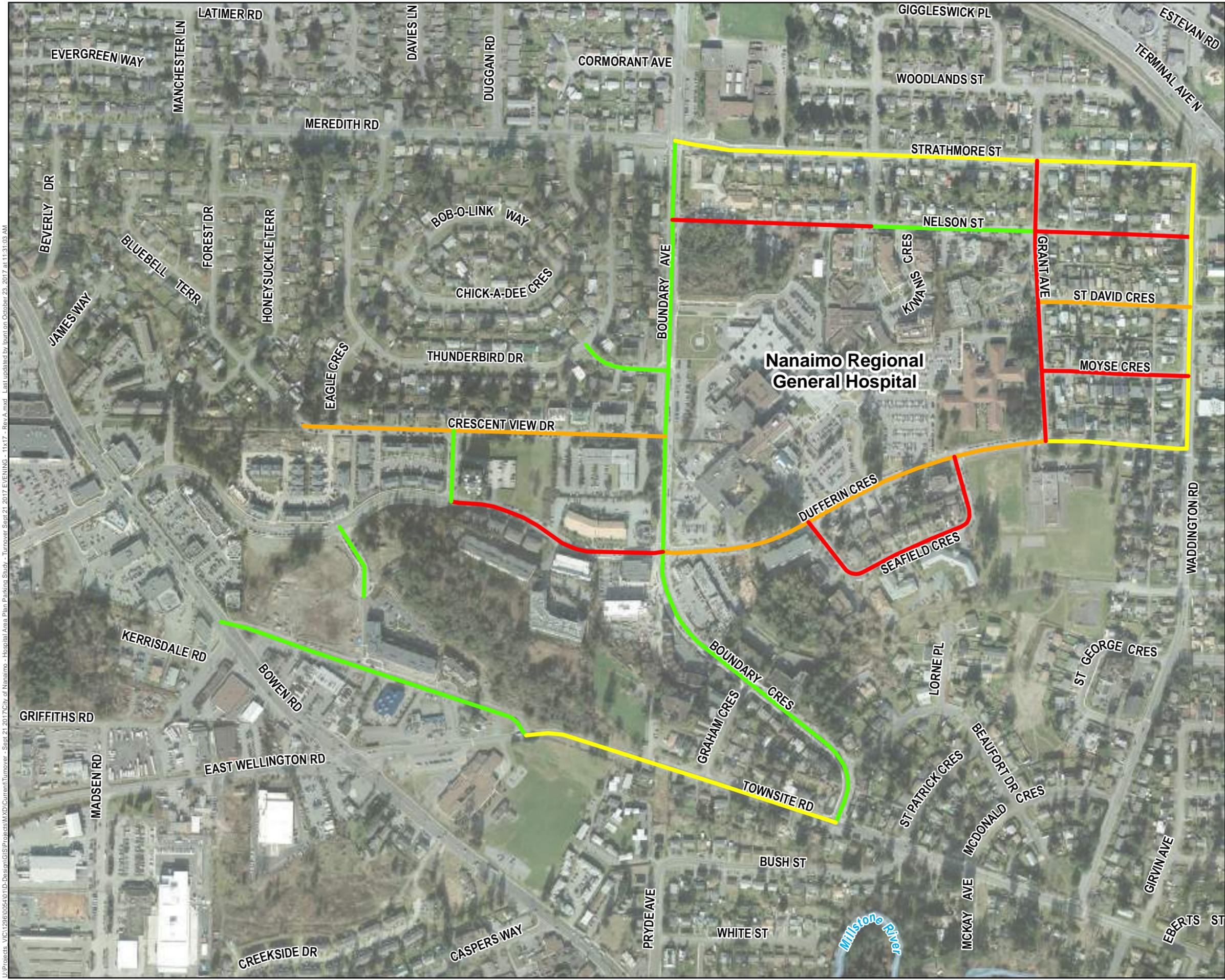
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 Author: LP
 Checked: SH
 Status: - DRAFT -
 Revision: A
 Date: 2017 / 10 / 23



FIGURE B2

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Hospital Area Plan Parking Study

On-street Parking Turnover
September 21, 2017
4:30 PM to 6:30 PM

Legend

Average Length of Vehicle Stay (hours)

- 2 Hours or Less
- 2 to 2.5 Hours
- 2.5 to 3 Hours
- Greater than 3 Hours



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Coordinate System:
 NAD 1983 UTM Zone 10N

Scale:
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Data Sources:
 Data provided by the City of Nanaimo, 2016-17.

Project #: 1296.0054.01
 Author: LP
 Checked: SH
 Status: - DRAFT -
 Revision: A
 Date: 2017 / 10 / 23



FIGURE B3

U:\Projects\1296\0054\01\Design\GIS\Projects\Map\Current\Turnover - Sept 21, 2017\City of Nanaimo - Hospital Area Plan Parking Study - Turnover Sept 21, 2017 EVENING - 11x17 - Rev A.mxd - Last updated by lbunt on October 23, 2017 at 11:31:03 AM

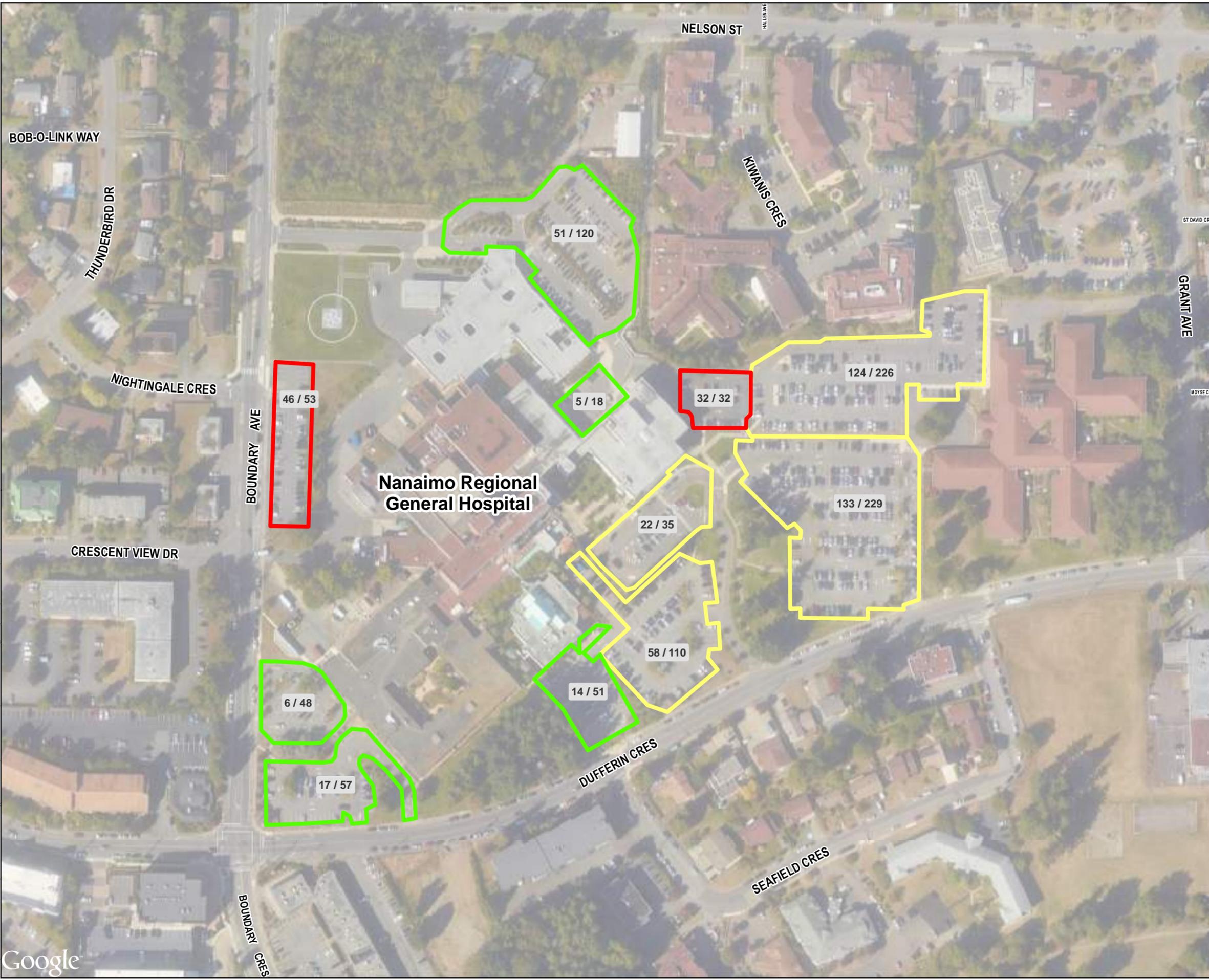
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APPENDIX C

Off-Street Parking Survey Summary Maps

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C:\Projects\VIC\1296.0054.01\Projects\MXD\Current\Parking - June 8th\City of Nanaimo - Hospital Area Plan Parking Study - Hospital Lot Occupancy June 8 - 7AM - 10AM - 11x17 - Rev A.mxd - Last updated by lbunt on June 20, 2017 at 2:24:21 PM



Hospital Area Plan Parking Study

Hospital Parking Lot Occupancy Wednesday June 7th 7 am - 10 am

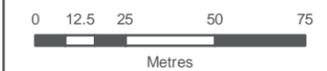
Legend

Existing Occupancy

- 0% - 50%
- 51% - 70%
- 71% - 85%
- 86% - 100%



The accuracy & completeness of information shown on this drawing is not guaranteed. It will be the responsibility of the user of the information shown on this drawing to locate & establish the precise location of all existing information whether shown or not.



Coordinate System: NAD 1983 UTM Zone 10N
Scale: 1:2,000

Data Sources:
Data provided by the City of Nanaimo, 2016-17.

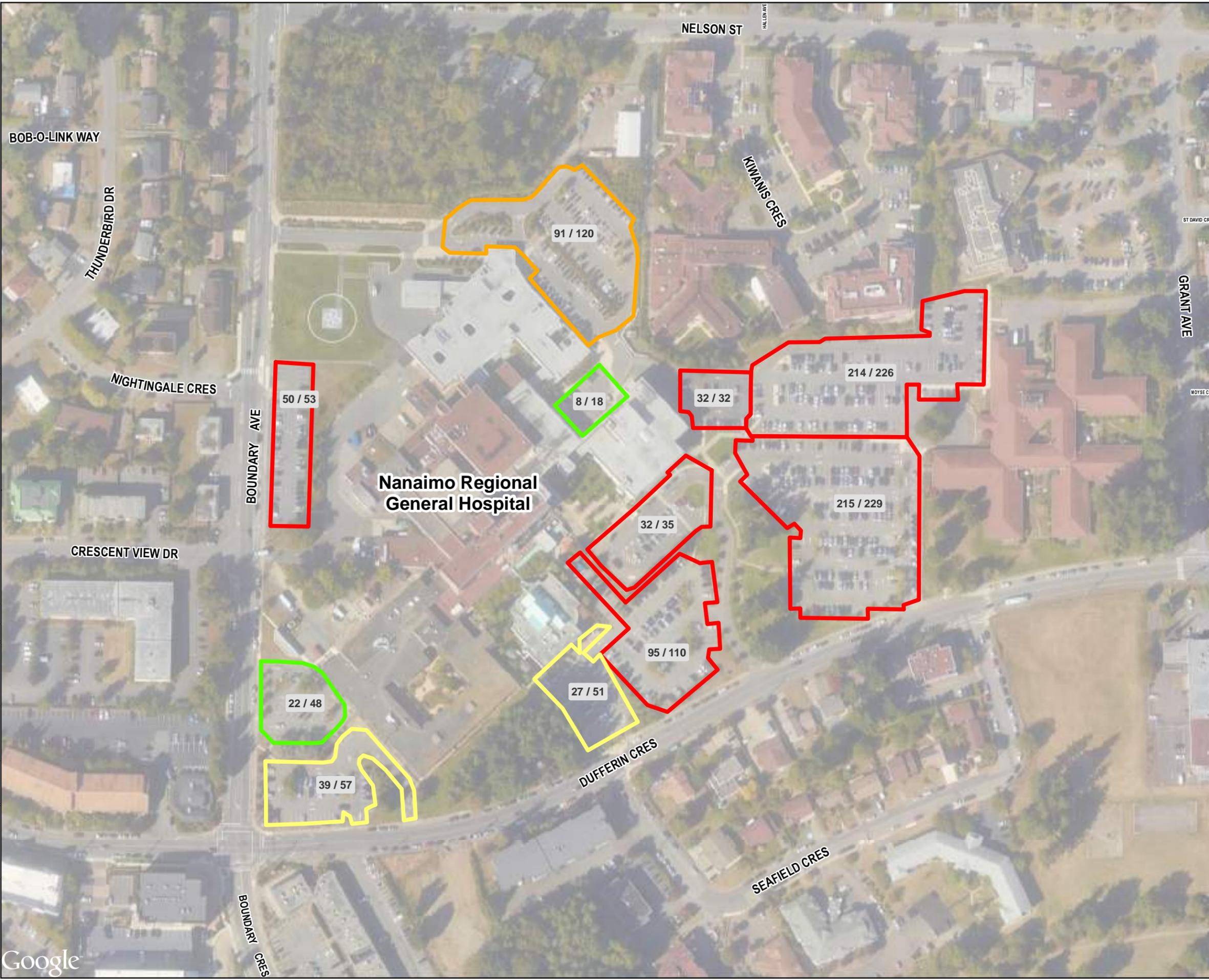
Project #: 1296.0054.01
 Author: LP
 Checked: MB
 Status: **- DRAFT -**
 Revision: A
 Date: 2017 / 6 / 20



FIGURE C1

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Hospital Area Plan Parking Study

Hospital Parking Lot Occupancy Wednesday June 7th 11 am - 2 pm

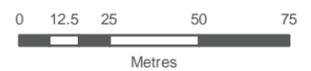
Legend

Existing Occupancy

- 0% - 50%
- 51% - 70%
- 71% - 85%
- 86% - 100%



The accuracy & completeness of information shown on this drawing is not guaranteed. It will be the responsibility of the user of the information shown on this drawing to locate & establish the precise location of all existing information whether shown or not.



Coordinate System: NAD 1983 UTM Zone 10N
Scale: 1:2,000

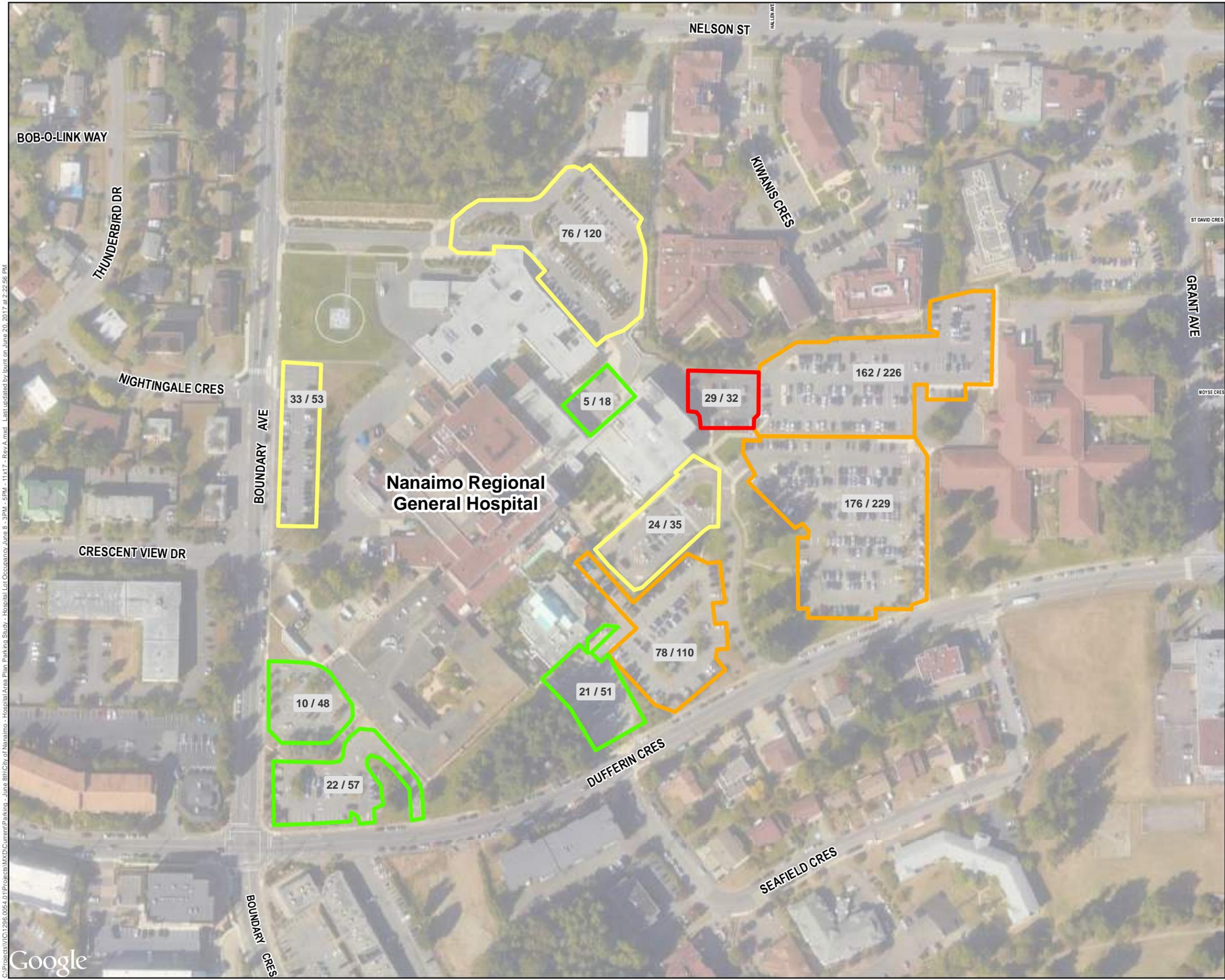
Data Sources:
Data provided by the City of Nanaimo, 2016-17.

Project #: 1296.0054.01
 Author: LP
 Checked: MB
 Status: - DRAFT -
 Revision: A
 Date: 2017 / 6 / 20



FIGURE C2

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Hospital Area Plan Parking Study

**Hospital Parking Lot Occupancy
Wednesday June 7th
3 pm - 5 pm**

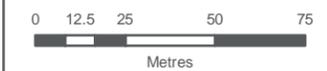
Legend

Existing Occupancy

- 0% - 50%
- 51% - 70%
- 71% - 85%
- 86% - 100%



The accuracy & completeness of information shown on this drawing is not guaranteed. It will be the responsibility of the user of the information shown on this drawing to locate & establish the precise location of all existing information whether shown or not.



Coordinate System: NAD 1983 UTM Zone 10N
Scale: 1:2,000

Data Sources: Data provided by the City of Nanaimo, 2016-17.

Project #: 1296.0054.01
Author: LP
Checked: MB
Status: **- DRAFT -**
Revision: A
Date: 2017 / 6 / 20

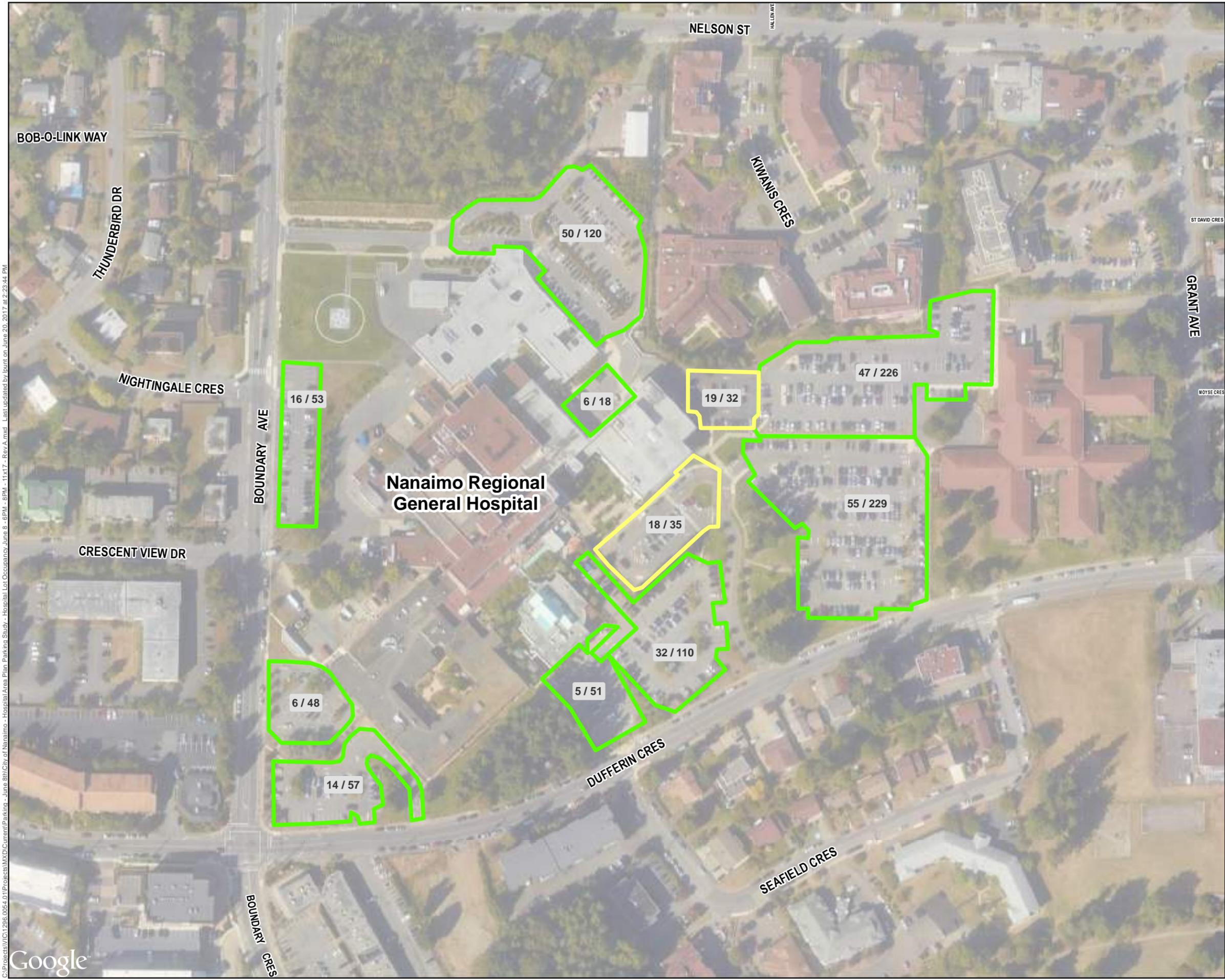


FIGURE C3

C:\Projects\VIC\1296.0054.01\Projects\MXD\Current\Parking - June 8th\City of Nanaimo - Hospital Area Plan Parking Study - Hospital Lot Occupancy June 8 - 3PM - 6PM - 11x17 - Rev A.mxd Last updated by lpunt on June 20, 2017 at 2:22:56 PM



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Hospital Area Plan Parking Study

**Hospital Parking Lot Occupancy
Wednesday June 7th
6 pm - 8 pm**

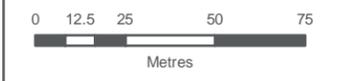
Legend

Existing Occupancy

- 0% - 50%
- 51% - 70%
- 71% - 85%
- 86% - 100%



The accuracy & completeness of information shown on this drawing is not guaranteed. It will be the responsibility of the user of the information shown on this drawing to locate & establish the precise location of all existing information whether shown or not.



Coordinate System: NAD 1983 UTM Zone 10N
Scale: 1:2,000

Data Sources: Data provided by the City of Nanaimo, 2016-17.

Project #: 1296.0054.01
Author: LP
Checked: MB
Status: **- DRAFT -**
Revision: A
Date: 2017 / 6 / 20



FIGURE C4

C:\Projects\VIC\1296.0054.01\Projects\MXD\Current\Parking - June 8th\City of Nanaimo - Hospital Area Plan Parking Study - Hospital Lot Occupancy June 8 - 6PM - 8PM - 11x17 - Rev A.mxd Last updated by lpunt on June 20, 2017 at 2:23:44 PM



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APPENDIX D

Summary Community Engagement

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MEMORANDUM

Phase 1 Consultation July – August 2017

Hospital Area Neighbourhood Association (HANA)

A community meeting was held with the Hospital Area Neighbourhood Association (HANA) on July 31st, 2017. The following is a summary of opportunities raised in response to parking related issues in the Hospital Area neighbourhood.

Participants stated that on-street vehicle parking should be managed to reduce street congestion. This includes introducing residents' only parking and increased bylaw enforcement for vehicle parking to help limit poor visibility at driveways, approaching intersections as well as around curves in roadways. It was also suggested that infrastructure should also be upgraded throughout the hospital area to include more curbs and sidewalks near driveways and intersections.

The HANA also stated that the absence of a parkade at the hospital is resulting in employees parking on residential streets. The HANA believes the hospital should construct additional parking for employees and the City should price on-street parking where residents are exempt from fees.

Participants have also noted that City should create a dialogue with HANA to review new residential developments to ensure they sufficient off-street parking and that parking variances

Stakeholders' Meeting

A Stakeholder meeting was held in July, 2017. The following is a summary of issues raised in response to parking issues in the Hospital Area. The comments are sorted into the following categories:

- Relationship between hospital, City, Community, RCMP and RDN;
- Parking;
- Pricing On-Street Parking;
- Parking Management; and
- Transportation Demand Management.

Relationship between Hospital, City, Community, RCMP, RDN

Stakeholders stated that there is the perception that the Hospital is indifferent to the concerns of local residents. The following were discussed to address the importance of enhancing the relationship between stakeholders and community:

- Hospital and City need to establish an institutional link to manage issues related to increased traffic and reduced parking availability, and to collaborate on growth and development.
- A dialog between the Hospital and the community needs to be developed to reduce conflicts that may be caused by a shortage of on-street parking.
- Examine options to manage and regulate on-street parking for daytime users and for residents.
- Discuss current and future parking options / expectations between Hospital staff and administration (e.g. staff expect parking within close proximity to Hospital site).
- Parking at the Hospital is a complex issue. Residents, daytime users and local residents need more information and education to find a solution. Share information, discuss options, and work together with all stakeholders to find a long-term solution.

MEMORANDUM

Parking

To address the shortage of hospital parking, stakeholders suggested the following:

- Provide additional parking on the hospital site;
- Permit shared parking (between separate land owners) in the hospital area;
- Improve / maximize on-street parking in the hospital area;
- Examine the supply / demand of parking reserved for patients and families and allocate additional parking spaces near the Hospital, if required;
- Examine the supply / demand of parking reserved for disabled / elderly and allocate additional parking spaces near the Hospital, if required;
- Introduce residents' only parking;
- Prioritize snow removal on streets in the hospital area as snowfalls limit the amount of on-street parking in winter; and
- Implement time restrictions for on-street parking.

Pricing On-Street Parking

The introduction of parking fees was raised as one of the suggestions to address issues with on-street parking in the Hospital Area. Relevant comments include:

- The HANA supports the pricing of hospital-area street parking to regulate streets that are congested with parked vehicles, however, there are concerns that implementing on-street pay parking may force day-time hospital users to park on residential streets further away from the Hospital;
- Pricing on-street parking would also provide an incentive for hospital-area developers to construct additional off-street parking;
- City/ Hospital should encourage the construction of public parkades in the hospital area; and
- Residents should be exempt from parking fees.

Parking Management

Discussions around the existing parking management include:

- Evaluate and improve parking management to address the complex and historic management of hospital staff parking (employees pay for a spot without guaranteed availability);
- Evaluate and improve existing parking management for Hospital staff, patients, and patients' caregivers:
 - to avoid the impact of stresses associated with parking conflicts; and
 - to ensure the existing supply of Hospital parking is adequate to accommodate demand generated by new services or training activities.
- Parking (and bicycle parking) is not considered direct patient care and therefore VIHA funding for site improvements is limited. Examine funding model for site improvements, including the provision of Hospital parking (and bicycle parking).

Transportation Demand Management

Comments that will likely inform Transportation Demand Management include:

- Evaluate parking demand during periods when Hospital shifts overlap and implement parking management strategies if supply is short of demand;

MEMORANDUM

- Develop a comprehensive parking plan that does not simply force on-street parking conflicts on to other residential streets in the hospital area;
- Develop a plan to reduce the demand for parking for Hospital employees;
- Encourage hospital administration to examine parking in context of Transportation Demand Management to promote extensive use of the existing formal carpooling initiative;
- Provide secure and convenient bicycle storage, showers, etc. in new hospital area developments to encourage cycling and cycle-commuting in the hospital area;
- Evaluate the capacity of Dufferin Crescent to support vehicles, cycling, and on-street parking to accommodate the current volume of traffic/parked vehicles; and
- Increase enforcement and update the parking bylaw.

Online Survey

An online survey was conducted June - August 2017 to collect comments on the Hospital Area Plan from the public. The survey had a total of 23 questions about Issues and Opportunities in the Hospital Area, out of which, 6 questions were directly related to parking. The following section provides summaries of the 504 responses. It should be noted, that not all participants answered the questions, so the total number of respondents is outlined in the summary of the corresponding questions.

Three Things You Would Like to Improve in the Hospital Area

Q5: What are the three things you would like to improve in the Hospital Area?

For the question “what are the three things that you would like to improve in the hospital area, parking was mentioned 292 times in the participants’ responses; this was the most common response. The word that had second highest mentions was “greenspace” and it appeared 60 times. The word “traffic” stood third in occurrence at 57 times.

On-Street Parking in the Hospital Area

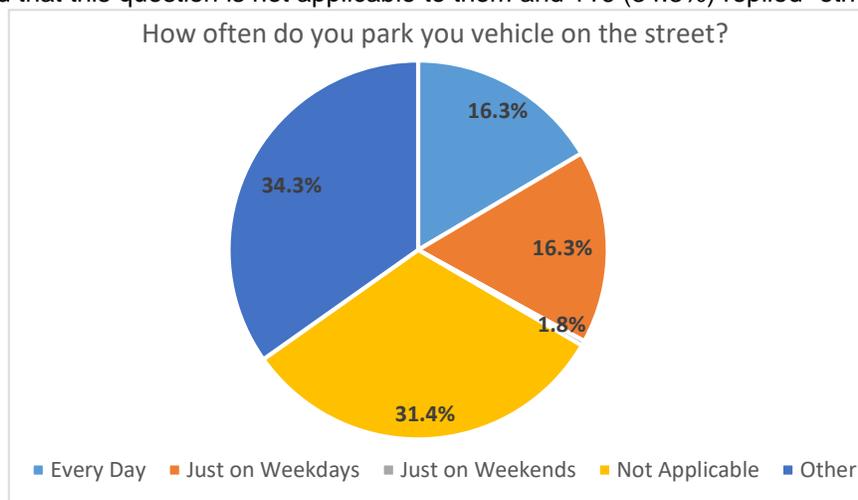
Q14: Do you park a vehicle on the street in the hospital area?

Out of the 504 participants, 389 responded while 115 skipped the question. 200 of the respondents (51%) stated they park their vehicle on the street while 189 (49%) did not.

Parking Frequency

Q15: If you do park a vehicle on the street in the hospital area, how often?

Out of the 338 participants who responded to this question, 55 (16.3%) park their vehicle on the street every day. 55 (16.3%) park just on weekdays, while 6 (1.8%) park just on weekends. 106 respondents (31.4%) replied that this question is not applicable to them and 116 (34.3%) replied “other”.

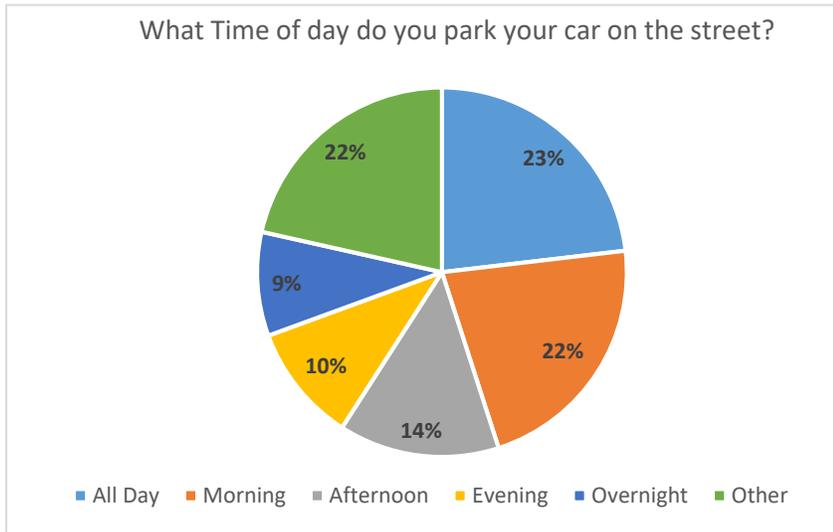


MEMORANDUM

Parking Time

Q16: If you park on the street in the hospital area, what time of day?

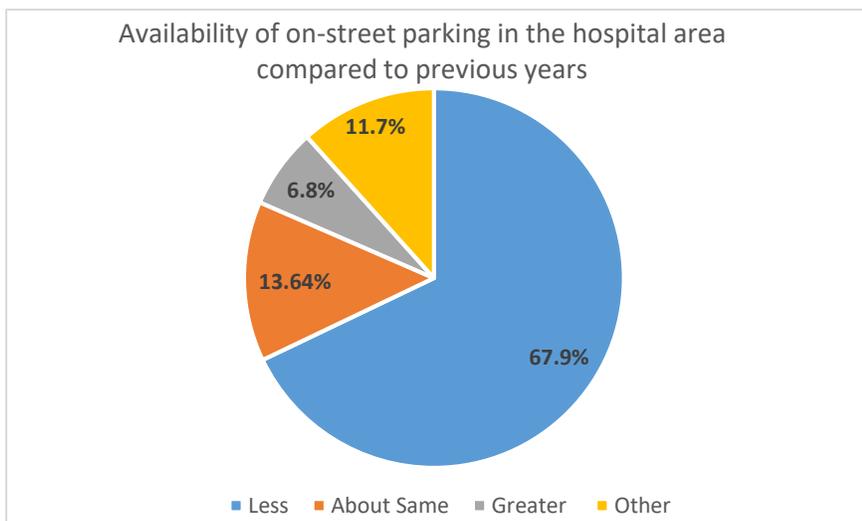
Out of the 325 participants who responded to this question, 112 (34.5%) park all day, 106 (32.6%) park in the morning, 68 (20.9%) park in the afternoon, 50 (15.4%) park in the evening, and 44 (13.5%) park their vehicles overnight on the street in the hospital area. 104 (32%) replied this question does not apply to them, while 25 (7.8%) replied “other”. The following figure illustrates the responses for



Availability of On-Street Parking

Q17: Compared to previous years, the availability of on-street parking in the hospital area is currently:

Out of the 352 respondents, 239 (67.9%) replied that the availability of on-street parking in the hospital area is currently less than in previous years. 48 (13.64%) stated that on-street parking is about the same as in previous years. 24 (6.8%) replied that parking in the hospital area is currently greater compared to previous years. 41 respondents (11.7%) replied “other”. The following figure shows the percentage mix of the responses collected for the comparison of current and previous on-street parking availability.



MEMORANDUM

Concerns about On-Street Parking in the Hospital Area

Q18: Do you have any specific concerns about on-street parking in the hospital area?

This question was answered by 300 respondents. The top three phrases with the highest number of mentions were “insufficient on-street parking” at 70 times, “Reduced visibility” at 33 times and “Insufficient hospital parking” at 29 times. The phrase “free parking” appeared 17 times and is the ninth most mentioned phrase in the responses to this question.

Phase 2 Consultation - December 2017

During Phase 2.0 consultation three community engagements were held to gather comments from stakeholders and the public on the Hospital Area Plan. This section provides a summary of opportunities discussed in relation to parking issues in the Hospital Area. The three consultations included:

- Two Stakeholder Meetings
- One Public Open House
- Online Survey

Stakeholders' Meeting

Two Stakeholder meetings and a public open house were held in December 2017. The following is a summary of issues raised in response to parking issues in the Hospital Area. The comments are sorted into the following categories:

- Transit;
- Cycling;
- Parking enforcement;
- 2-hour parking time limit;
- Evening parking; and
- Public reactions.

Transit

Stakeholders discussed the option of improving transit service as a strategy for addressing parking issues in the Hospital Area. Some concerns were raised in regards to the practicality of transit. The following was discussed:

- Hospital workers have indicated preference towards creation of a direct route to the hospital with no transfers.
- Increased transit frequency will act as an incentive to choose this mode.
- Encouraging the hospital to subsidize or pay for transit passes may incentivize hospital employees who do not require a car to take transit to work.
- BC Transit will be adding 5,000 hours to the bus routes in Nanaimo in September 2018. The hospital should lobby for increased frequency on Route 30 to the hospital area.

MEMORANDUM

Cycling

Cycling was also raised as a potential alternative form of transportation for both employees and clients of the hospital. The lack of practicality of this mode, however, was also raised as a concern. The following was discussed:

- Incorporating cycling lanes may reduce parking availability in the area.
- A connected bike network is necessary to make cycling a viable choice. If cycling lanes are not connected to each other or trail networks, motorists will not make the switch.
- Cycling is not ideal for all user groups, particularly families with children and seniors.

Parking Enforcement

Group members indicated that more bylaw enforcement of parking in the hospital area may reduce issues as increased turnover of spots would be required, therefore increasing space availability. However the current ticketing strategy is complaint-based and there are few restrictions in place.

2-Hour Parking Time Limit

The idea of implementing 2-hour parking for clients and visitors to the hospital was suggested by the consultant. The following was discussed:

- Many hospital clients visits fit within a 2-hour time period.
- A dedicated section of 2-hour parking would allow visitors/clients to park closer to the clinic instead of having to drive around the surrounding area in search of parking.
- Technology that allows for parking time top-ups is being explored for cases where the 2-hr time limit may be exceeded.

Evening Parking

The consultant elaborated that evening parking has been investigated at the hospital as it was identified as a concern by the community. Free evening parking at the hospital was recommended as a solution. The following was discussed:

- Residents living in the area surrounding the hospital are experiencing an overflow of street parking during the early evening, causing them to park in other locations further away from their homes.
- The hospital has many parking spaces available during the evening hours so little revenue is being generated during this time. Parking could be free at the hospital after 5:00 pm.
- The church on Waddington is an option for providing additional parking. However many staff do not want to walk that far as they feel unsafe, particularly at night.
- Pay parking can be implemented on streets in the hospital area between the hours of 8:00 am to 5:00 pm, after which time parking will be free.

Public Reactions

The discussion surrounding the implementation of paid parking at the hospital led to concern about public reaction to this change. The following was discussed:

MEMORANDUM

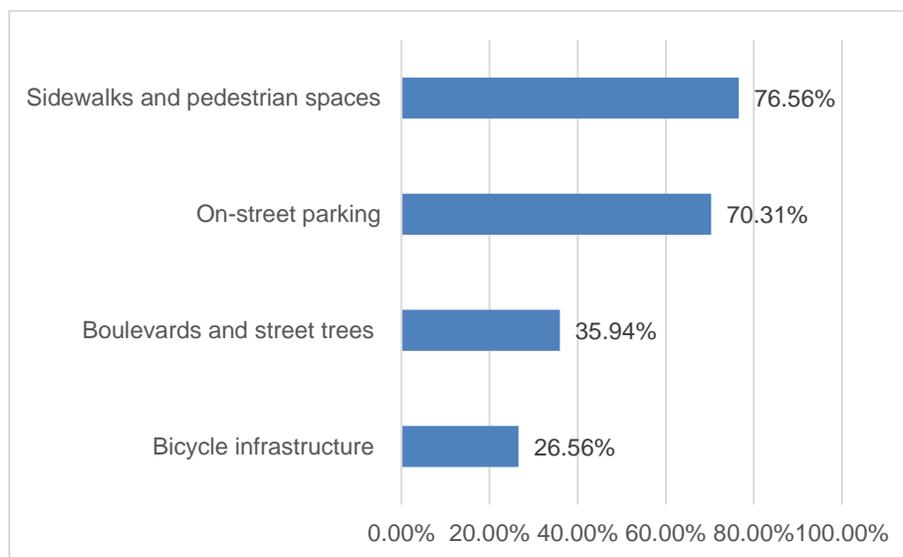
- If pay parking is implemented in the hospital area, this will be the first area outside of downtown and Vancouver Island University in the City that requires pay parking.
- The public appreciates notification of changes, so a timeline is needed to adequately address any public concerns and to provide proper notification of when the change will be implemented.

Online Survey

An online survey was conducted in December 2017 to collect comments on the Hospital Area Plan from the public. The survey had a total of 29 questions, of which 9 addressed parking in the Hospital Area. The following section provides summaries of the 108 responses. It should be noted, that not all participants answered the questions, so the total number of respondents is outlined in the summary of the corresponding questions.

Q17: For Boundary Avenue concepts B and C, what are the 3 most important elements of the street?

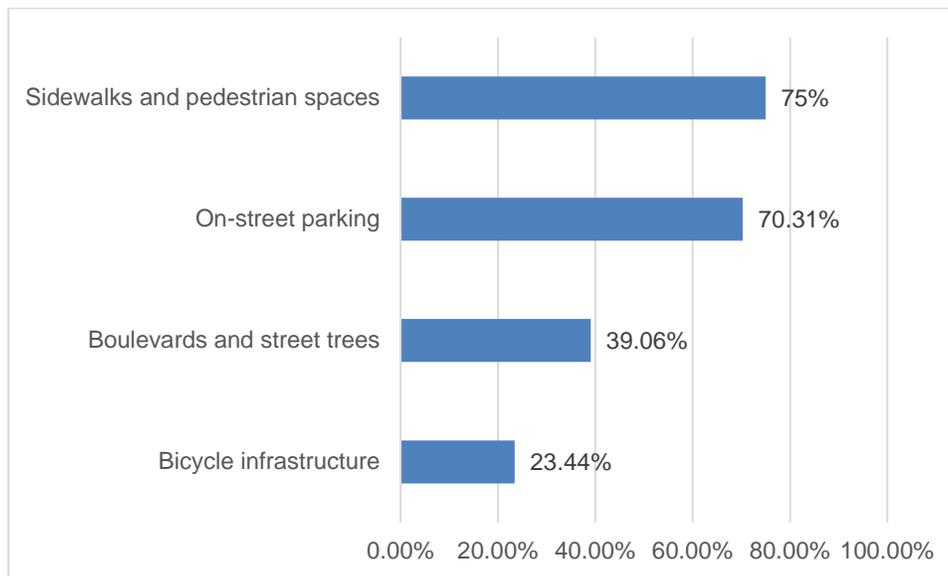
Out of the 108 participants, 64 responded, while 44 skipped the question. 45 respondents (70.3%) indicated that on-street parking is the most important element of the street. The following figure outlines the breakdown of responses for this question.



Q18: For Dufferin Crescent concepts D and E, what are the 3 most important elements of the street?

64 participants responded to the question. 45 respondents (70.3%) indicated that on-street parking is the most important element of the street. The following figure outlines the breakdown of responses for this question.

MEMORANDUM



Q19: Streets are our shared public spaces. Along the Dufferin Crescent corridor, should boulevard street trees, cycling infrastructure, and pedestrian spaces expand at the expense of on-street parking on one side of the street?

64 participants responded to this question of the total 108. 36 respondents (56.3%) indicated that the mentioned features should not expand at the expense of on-street parking in the Dufferin Crescent corridor.

Q24: As a strategy to manage parking and increase the turnover of parked vehicles, do you support pricing on-street parking in the Hospital Area?

Out of the 108 participants, 60 responded to this question. 38 respondents (63.3%) indicated they do not support pricing on-street parking in the Hospital Area.

Q25: As a strategy to manage parking and increase the turnover of parked vehicles, do you support additional 2 hour parking restrictions in the Hospital Area?

61 participants responded to this question. 37 respondents (60.7%) indicated that they do not support additional 2 hour parking restrictions in the Hospital Area.

Q26: As a strategy to manage parking and increase the turnover of parked vehicles, do you support additional residents' only parking restrictions in the Hospital Area?

62 participants responded to the question of the total 108. 34 respondents (54.8%) indicated that they do not support residents' only parking restrictions in the Hospital Area.

Q27: Parking choice: if you use on-street parking in the Hospital Area, what factors influence where you choose to park?

This question was answered by 55 respondents. 40 respondents (72.7%) indicated that parking availability most influences where they choose to park, while another 33 (60%) respondents indicated that proximity to work/home is an influencing factor. The following figure illustrates the breakdown of responses for this question.

MEMORANDUM

