

Service Discussion Document

KAMLOOPS

March, 2015

City of Kamloops



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1.0 BACKGROUND

In May 2012, BC Transit completed a long-term Transit Future Plan (TFP) with the City of Kamloops. This strategic plan lays out what the transit network in Kamloops should look like 25 years from now and describes the priorities, infrastructure and investment needed to get there. In the same timeframe (May 2012) Kamloops City Council approved a 6000 hour expansion to conventional transit that encompassed short term recommendations from the TFP. Some recommendations have already been implemented in September 2012. BC Transit started this Service Discussion Document with the objective of identifying specific recommendations related to the 6000 hour transit service expansion. The assumptions made when starting the Service Review were twofold:

- 1) Provincial funding would be available for this implementation
- 2) This expansion would be implemented in September 2015

The intent was to focus on the following routes:

- Route 1: Increased frequency from 30 minutes to 15 minutes on this route.
- Routes 4, 7 and 8: Reconfiguration of routes and adjustment of schedules for improved efficiency and new service to the West End area.
- Routes 5,9,10 and 14: Fine-tune run times to address concerns about On Time Performance of these routes and small service enhancements to increase connectivity of routes.

The focus on the above routes is based on the recommendations of the Transit Future Plan. However, since the TFP was completed in 2012 and a lot changes in three years, it was decided that a review of these recommendations was needed before they could be implemented. This review process included the following steps:

- 1) **Public consultation:** Done to gauge current issues, concerns and priorities among transit users.
- 2) **Analysis:** Done to establish operational issues within the system that needed to be addressed.
- 3) **Funding:** Reassess available funding levels based on approved provincial budgets for the three year budget cycle.

The final recommendations of this document take into consideration all three steps above.

2.0 TRANSIT FUTURE PLAN: PHASE 1 IMPLEMENTATION

In 2012, the first phase of the TFP recommendations were implemented. Following are the changes that came into effect :

- 1) Increased frequency on the Route 9-Gleaneagles to 15 minutes from 7 am to 7 pm
- 2) Combined Routes 10-Northshore TRU Express and 5-Pineview
- 3) Increased service on Routes 1-Tranquille and 2-Parkcrest
- 4) Eliminated Route11-Lorne

- 5) Introduced summer service reductions
- 6) Completed the new operations and maintenance facility

These changes were implemented in September of 2012.

3.0 TRANSIT FUTURE PLAN: PHASE 2 IMPLEMENTATION

The implementation of service changes in any transit system is a long process that starts with identifying issues, analyzing the issue using available data and then developing solutions to address them. As mentioned above, the following phases were completed to identify service recommendations for implementation:

- 1) Public consultation
- 2) Data analysis
- 3) Final recommendations

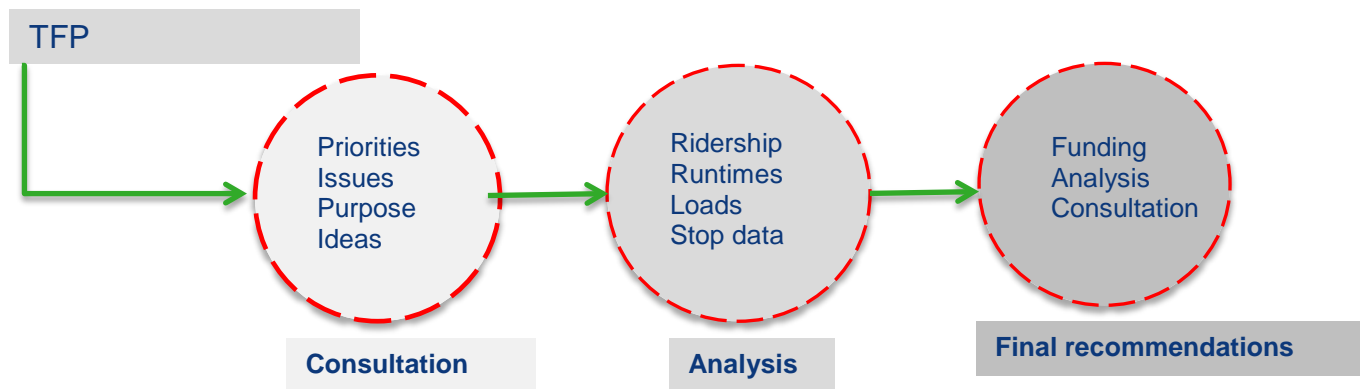


Fig 1: Diagram showing methodology undertaken during Review process

The three phases above are discussed in detail in the following pages to build up a context for the proposed changes.

4.0 PUBLIC CONSULTATION

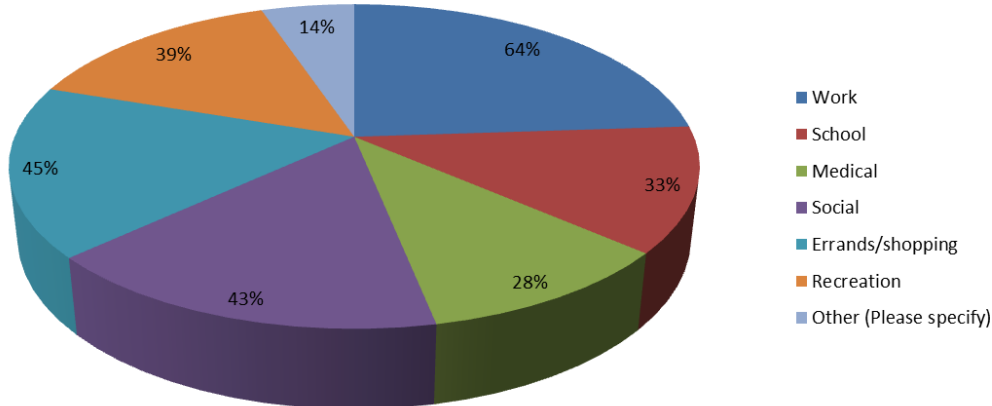
In November 2014, BC Transit in collaboration with the City of Kamloops and First Canada completed public consultation that included online surveying, and four days of Open Houses. The intention of this Consultation was to engage the public in some discussions regarding the changes proposed in the TFP as well as to provide some input on prioritizing these recommendations. The highlights of the consultation are as follows:

4.1 Online Survey

An online survey with about 10 questions was hosted on the BC Transit and City of Kamloops website for a period of two weeks. The total number of surveys completed in this time period was 381. Following are the highlights of the responses received:

Qualitative responses

Fig 2: Pie diagram showing distribution of purpose of travel among respondents, they got to choose more than one



- **63% of the respondents use transit to get to work**

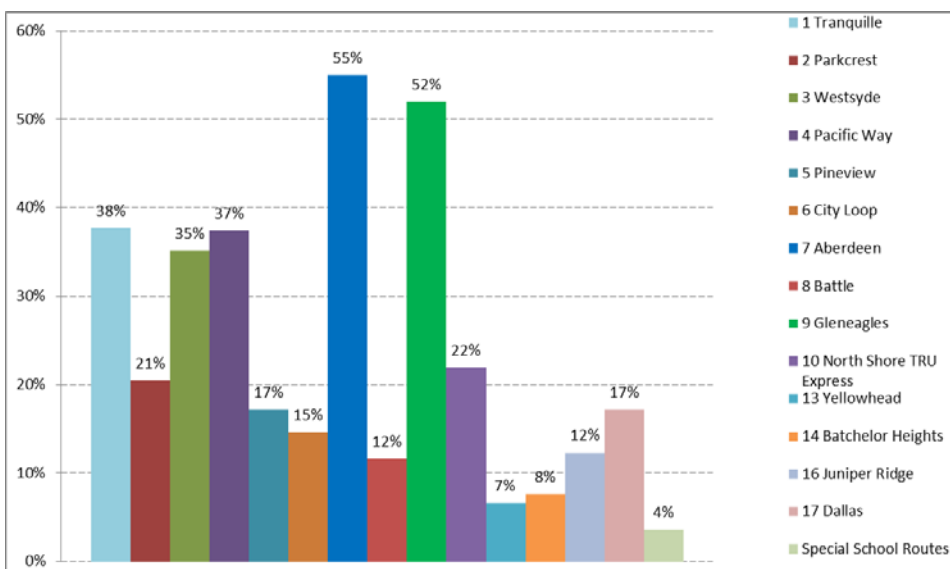
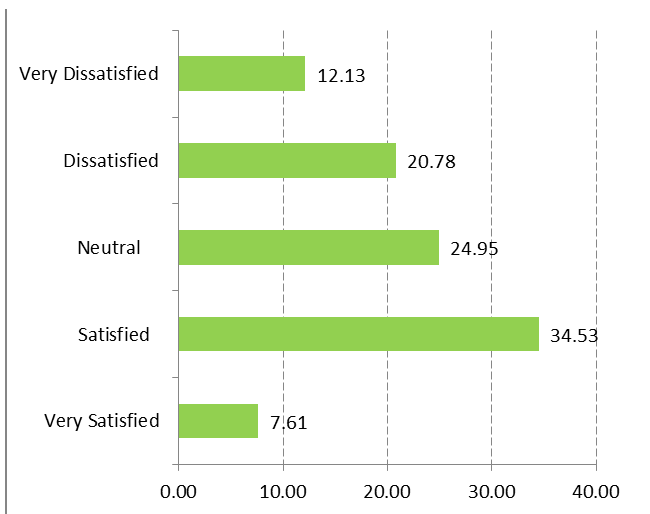


Fig 3: Bar chart showing highest ridership routes among respondents

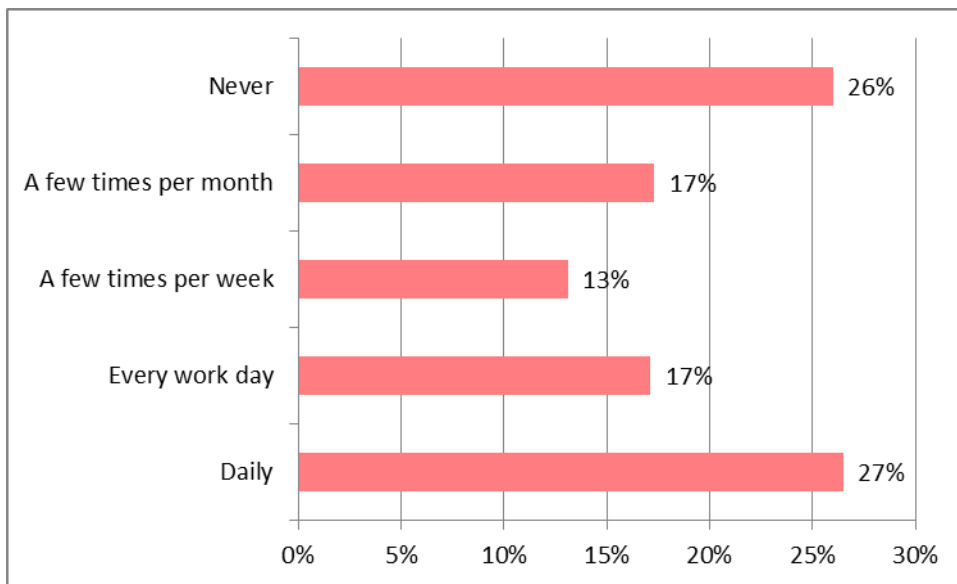
- **Majority of the respondents used routes are routes 9, 7,1**

Fig 4: Bar chart showing levels of satisfaction among respondents to service provided by Kamloops Transit



- **35% of respondents are satisfied with the existing transit service**

Fig 5: Bar chart showing frequency of use of service provided by Kamloops Transit System



- **27% of respondents use the service on a daily basis, with at least 17% using it every work day.**

Priorities

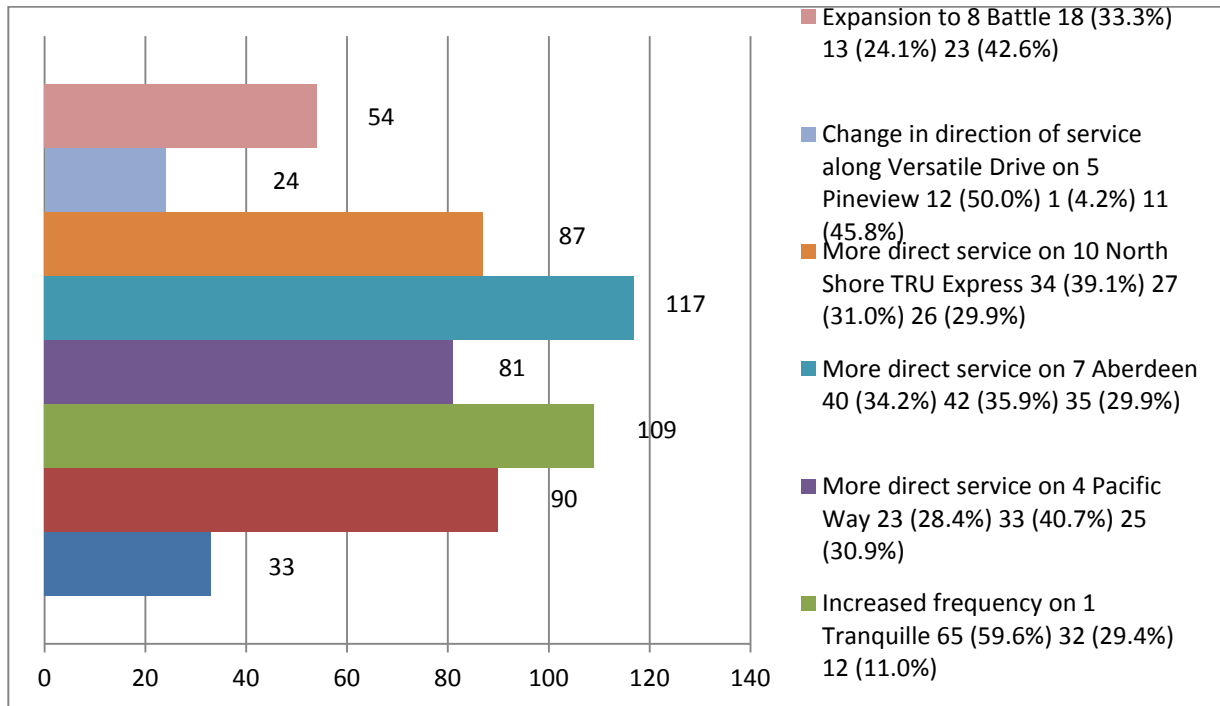


Fig 7: Bar chart prioritizing service change recommendations among survey respondents

- The top three service improvement priorities according to the respondents are :

More direct service to TRU on Route 7-Aberdeen

Increased frequency on the Route 1-Tranquille

More direct service on the Route 10-NorthShore TRU Express

4.2 Open Houses

Over a period of 3 days BC Transit in collaboration with the City of Kamloops and First Canada organized six Open Houses to have existing riders and potential new riders provide input on the system, its effectiveness and the upcoming service changes.

Proposed Service Changes
 We want to hear from you!
 Drop into our Open Houses or use the online survey until November 23.

Wednesday, November 19	7 am – 9 am	Lansdowne Exchange
	10 am – 2 pm	Thompson Rivers University
	6 pm – 8 pm	Interior Savings Centre, Blazer's Game
Thursday, November 20	8 am – 10 am	Northshore Exchange
	12 pm – 2 pm	Lansdowne Exchange
	4 pm – 7 pm	Northhills Mall

The Open House venues and times were picked to maximize people’s ability to attend them. Boards were presented to provide them with current information about the system as well as provide input on issues important to them. Approximately 350 people attended and we received about 402 comments.

Fig 8: Poster printed to generate awareness among the public regarding the Open Houses

What are your top 3 priorities for proposed service changes?

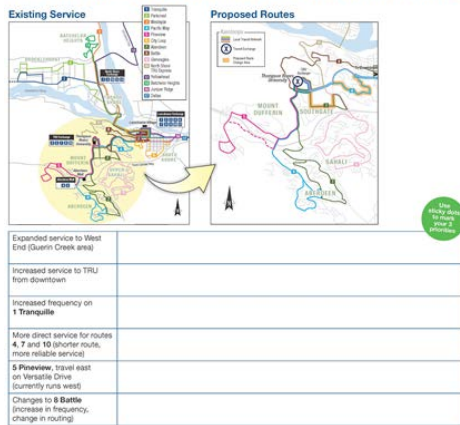
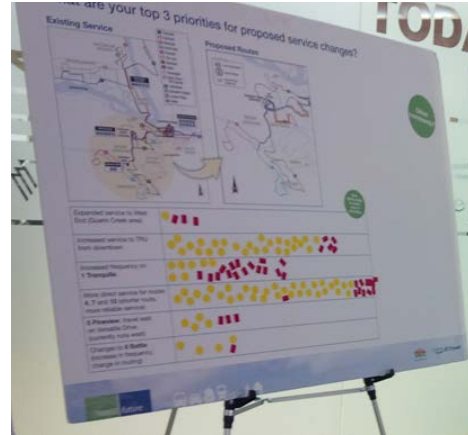


Fig 9: Boards created for the Open Houses, the picture on the right demonstrates "dot-mocracy".



People chose their priorities using colored dots.

Most repeated themes that were apparent:

- 1) **Quality of service:** Service needs to have better reliability; buses are running late or early, causing people to miss trips, in turn delaying them.
- 2) **Frequency of service:** Increased frequency on the routes 9, and the 14
- 3) **Span of service:** Increased hours of service, especially evening service
- 4) **New service areas:** Sun Rivers, Paul Lake, Sun Peaks and the TK'umlups Indian Band
- 5) **Technology:** A real time transit application would help people know where the bus is and when it is arriving at a particular stop in real time.

The top three service improvement priorities according to the general public are:

- 1) More direct service to TRU on Routes 7- Aberdeen, 4-Pacific Way and 10-Northshore TRU Express
- 2) Increased service to TRU
- 3) Increased frequency on the Route 1-Tranquille

In conclusion, the riding public is generally satisfied with the service being provided in Kamloops, however, because a large percentage of transit users get to work /school using transit, it is of primary importance to ensure that the service is reliable. The public consultation phase yielded some distinct priorities. They are, in order of importance:

- 1) **Improving reliability:** Ensure that buses arrive and depart on time per the published schedule.
- 2) **Improving efficiency :** Ensure a balance is achieved between transit usage and transit resource utilization

- 3) **Reducing duplication of service: Reducing duplication of service is another way of improving efficiency.**
- 4) **Improving peak period service: Addressing passenger needs during peak periods.**
- 5) **Reducing gaps in service: Improving the reliability of the system.**

These priorities also match the guidelines followed for the expansion of transit service across the Province, as illustrated in the figure below. It is important to reinforce the base before expanding service or service area.

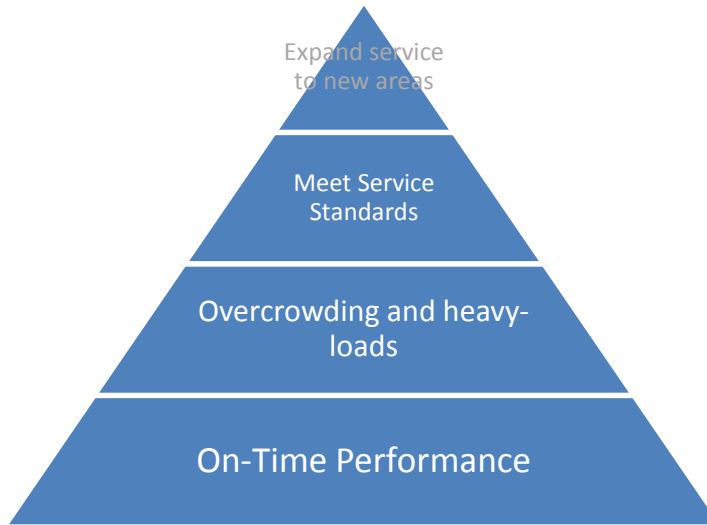
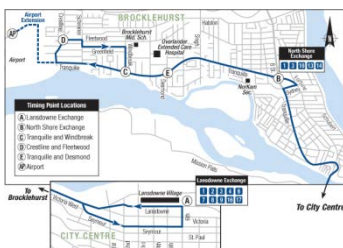


Fig 9: Triangle of guidelines for service expansion: reinforce base before moving up

5.0 ANALYSIS

Armed with public feedback, the next step undertaken was to analyze the different routes to corroborate issues brought up at the public consultation. Kamloops Transit currently has one bus equipped with the Automatic Passenger Counter (APC) technology. Using this technology, data was obtained on average daily ridership, average run times, and passenger loads over a period of two months. While this data is useful, it is also to be acknowledged that the sampling of the trips varied between 50 to 80%. Not all trips on all routes were sampled and this reduces the statistical reliability of the data.

5.1 Route 1-Tranquille



Transit Future Plan recommendation: Increase frequency of route to 15 minutes from 7am to 7 pm.

Current condition: The route 1-Tranquille runs peak service (15 minute service) from 7 am to 9 am in the morning and then from 230 pm to 6 pm in the afternoon.

Issue: Establishing whether a need for 7 am to 7 pm peak frequency exists.

Analysis: Ridership data was collected to review average daily ridership by hour as well as average daily loads by trip time.

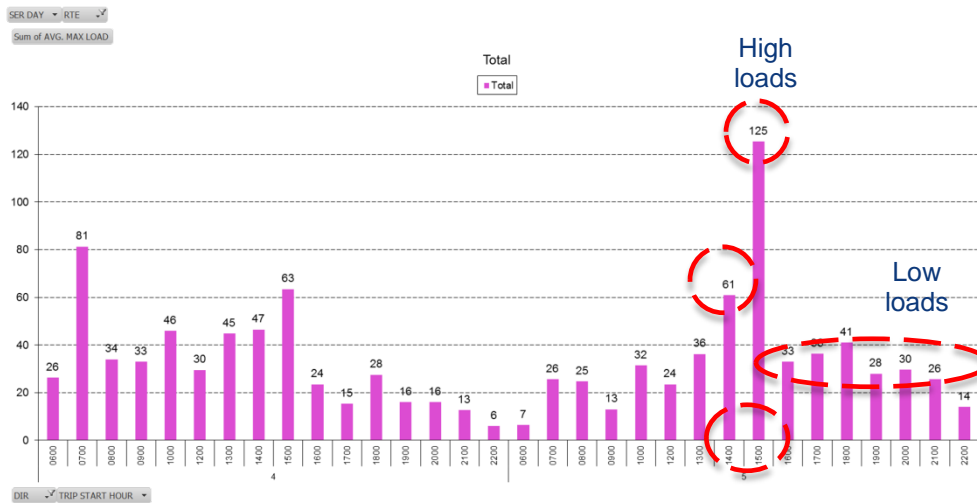


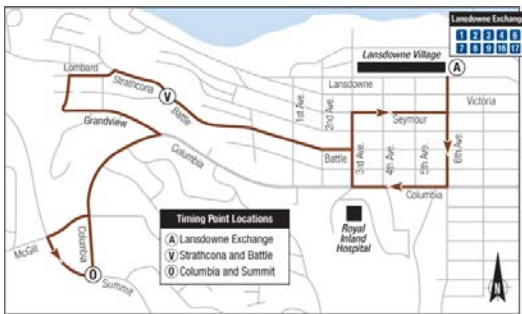
Fig 11: Route 1: analyzing loads in inbound and outbound directions for different times of day

Inference: The graphic above displays daily average loads on the Route 1 by time of day. As is obvious from the graphic, the peak loads are in the afternoon between 1pm and 4 pm after which the loads taper off. Considering that the capacity of the buses on this route is 40 passengers plus at least 10 standees and that there are at least two buses running every hour after 5 pm, there seems to be sufficient capacity within the existing frequency at this time.

Recommendation: Based on empirical data, BC Transit does not recommend increasing frequency on the Route 1 past 9 am or 6 pm at this time. However, given the afternoon peak loads, it might help if the afternoon peak period starts slightly earlier. One additional trip at 2:15 pm will help ease the loads and any run time issues that might be occurring with the Route 1 due to high volumes in the afternoon peak.

Consultation: Through consultation it has been determined that increasing the frequency on the Route 1 is important to the transit riders. It might however, be prudent to increase this frequency in proportion to the ridership. At this time issues with the service are being observed during the afternoon peak, recognizing this, the recommendation above is tailored to specifically address this deficiency.

5.2 Route 8-Battle



Transit Future Plan Recommendation: Extend the Battle route to provide service to the West End neighborhood and connect this route to TRU to improve its productivity.

Current condition: The Route 8-Battle serves the neighborhood west of downtown, connecting downtown, the Battle-Strathcona neighborhood to the shopping destinations on Columbia Street and Summit Avenue. This route runs at an hour frequency from 7 am to 7 pm, during weekdays and Saturdays. This area is served by Route 5 on Sundays.

Issue: Establishing need for extension of this route.

Analysis: Ridership data was collected to review average daily ridership by hour as well as average daily loads by hour.

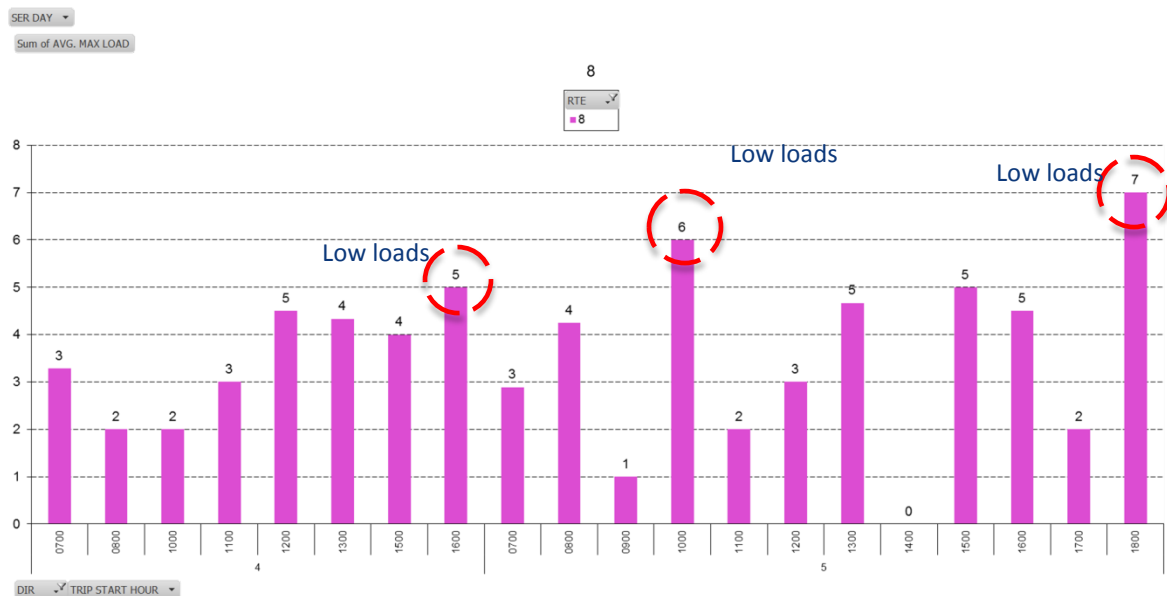


Fig 12: Route 8: load analysis in inbound and outbound direction

Inference: The graphic above displays daily average loads on the Route 1, by time of day. The maximum average capacity on the Route 8, varies from 0 people on the bus to 7 people on the bus during a 12 hour interval from 7 am to 7 pm. These loads are indicative of very low

productivity of the route, considering that in comparison, the Route 1 carries average daily loads of up to 35 people in an hour and the Route 9 averages loads of up to 50 people an hour.

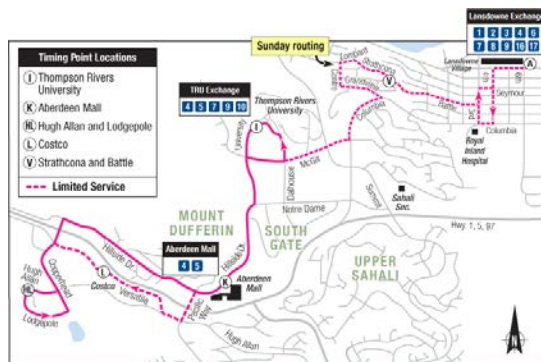
Recommendation: From a statistical stand point, the Route 8 presents an excellent opportunity to reallocate resources. One way of doing this, without affecting ridership is to have another route take on this service area on its way into Downtown Kamloops. The Route 7 could be a likely candidate. Currently it routes from Aberdeen through TRU into Downtown via Columbia Street. If it were to route to Downtown via the Battle-Strathcona neighborhood, it would solve two issues:

- 1) It would connect that neighborhood to TRU, in the outbound and inbound direction
- 2) It would provide service to that neighborhood, on the inbound and outbound segment.

All this can be achieved without a significant increase in the running time of the Route 7. Some analysis completed on scheduling software, HASTUS yields an insignificant (less than 5%) variation in run times of the Route 7.

Consultation: Route 8, Battle did not receive much priority during the consultation.

5.3 Route 5-Pineview



Transit Future Plan Recommendation: No specific recommendation

Current condition: The Route 5-Pineview connects up with the Route 10-Northshore TRU Express at TRU and heads south towards Costco and services the neighborhoods of Pineview and Mount Dufferin. The service span of this route is from 6 AM to 11 PM, it has half hour peak period service and runs on the hour when not in peak service.

The issue: The Route 5 has been having on time performance issues. These issues affect the Route 10 as well, since both the routes are interlined.

Analysis: Running time data for the route was collected. This data compares the actual run times with the scheduled run times. If there are running time issues, then the actual time it takes to run one trip will be higher than the time scheduled for that trip

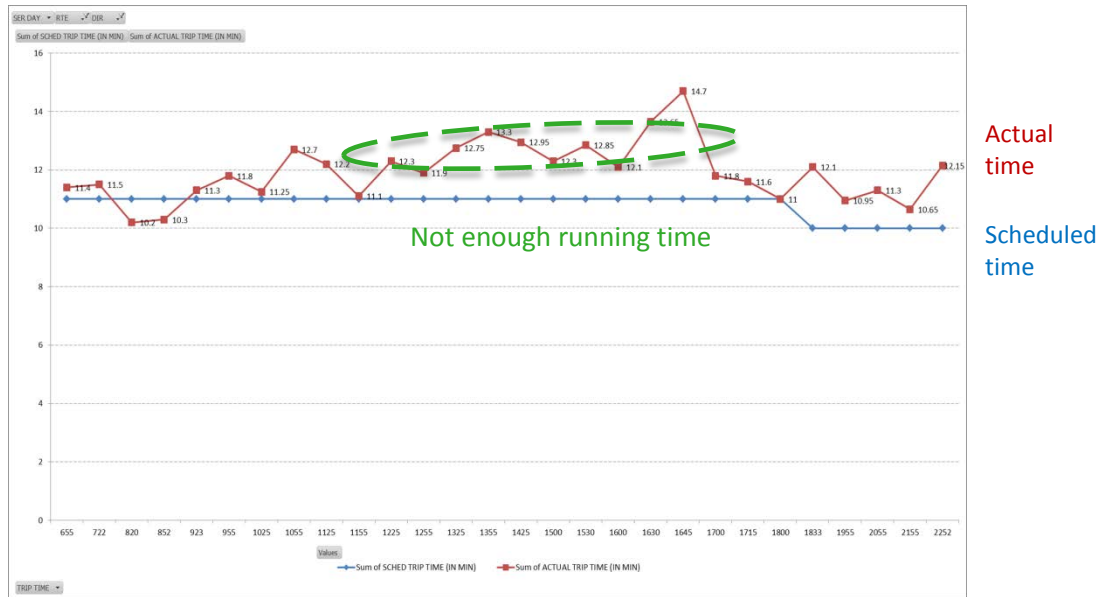
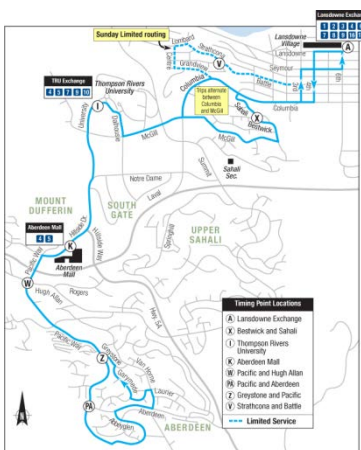


Fig13: Graph showing scheduled trip times versus actual trip times for both inbound and outbound trips for Route 5

Inference: Figure 13 clearly identifies issues with the running times as they are scheduled. The scheduled running times for the trips is about 10 minutes, however as is obvious they seem to be taking anywhere from 12 to 15 minutes. On a single trip basis this might not be much of a delay but as each trip runs late by a minute or two, cumulatively this adds up during the day.

Recommendation: Add more running time to the trips on the Route 5. This will, in effect result in minor changes to the schedule of both the Route 5 and the Route 10, since both are interlined.

5.4 Route 4-Pacific Way



Transit Future Plan Recommendation: Terminate at TRU.

Current condition: The Route 4, Pacific Way connects downtown Kamloops with TRU and then to the neighborhoods along Pacific Way. The route runs from 6 am to 10 30 pm and has peak service (half hour) between 7 am and 3 pm. This route also serves the Sahali-Bestwick area from 6 am to

6 pm. In a day this area is served by 14 trips at frequencies varying from 1 trip an hour to 2 trips an hour.

The issue: Two specific issues plague the Route 4:

- 1) Duplication of service, especially from TRU to downtown Kamloops, since the Route 7 and the Route 9 also serve this segment.
- 2) On time performance issues during the PM peak

Analysis: Running time and load data for the route was collected. This data compares the actual running times with the scheduled running times. If there are running time issues, then the actual time taken to run a trip will be higher than the time scheduled for that trip. It also compares the loads against the running times to determine if additional frequency was needed to address overloading.

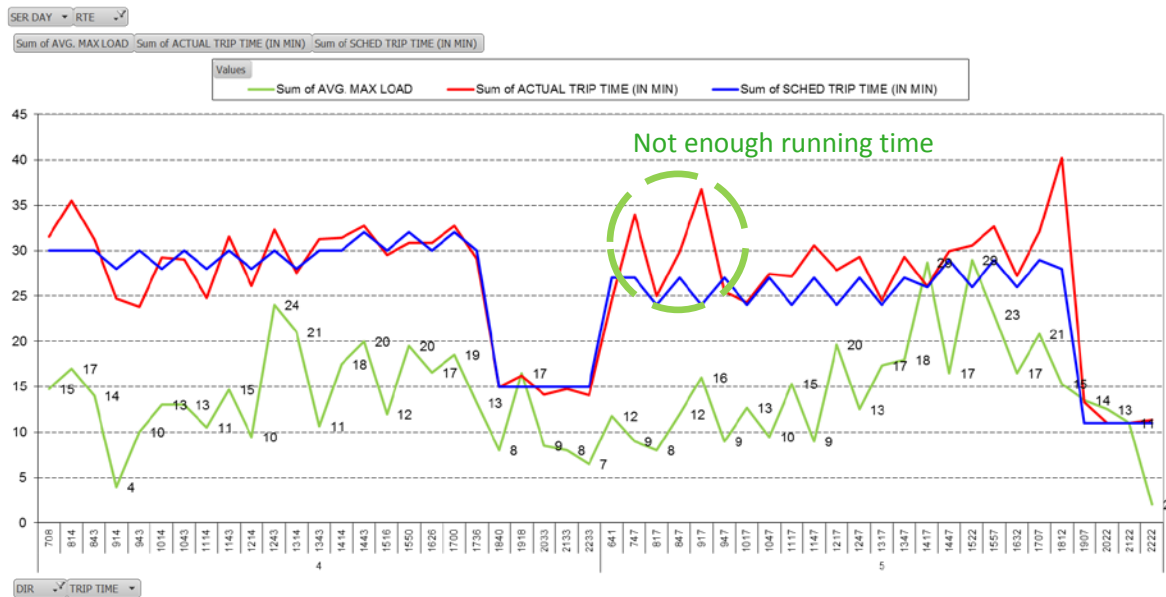


Fig14: Graph showing scheduled trip times versus actual trip times for both inbound and outbound trips for Route 4, against daily average loads

Inference: Figure 14 clearly identifies issues with trip running times as they are scheduled.

Recommendation: Reroute the Route 4 to start and end at TRU. Shortening of this route would address two of the issues identified above:

- 1) Duplication of service: Now there will not be a third route going down Columbia to Downtown, leading to efficiency of resources
- 2) Improved reliability: the shortened length of the Route 4 would require less running time, so that adjustments could be made to enhance the On Time Performance of the route.

Revised routing: having worked through some alternative routing scenarios, for the shortened routing on Route 4, the optimum recommendation in terms of both length of route, and coverage being provided by it as shown below:

Savings: Based on very preliminary calculations it is estimated that this change in routing for the Route 4, Pacific Way would lead to a sizeable savings in revenue hours annually; the details are being currently being finalized.

Fig15: Current routing

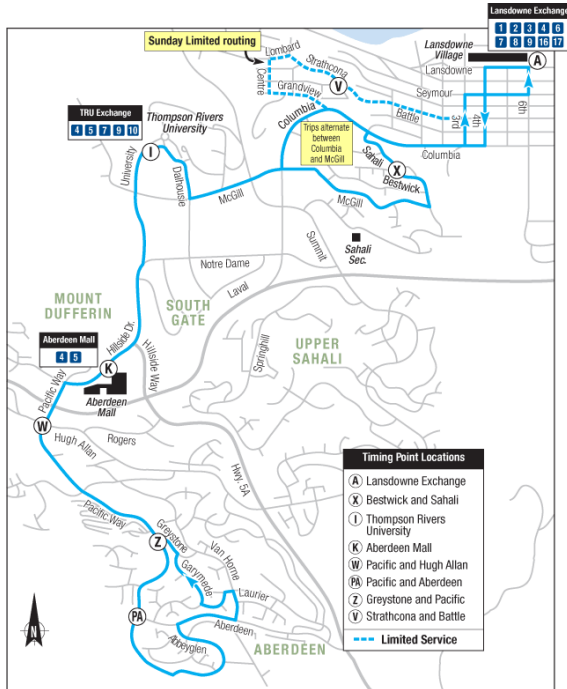
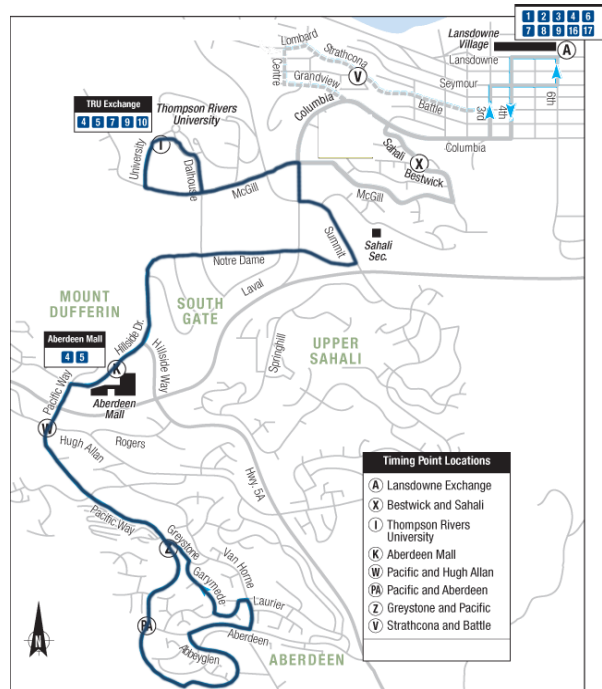
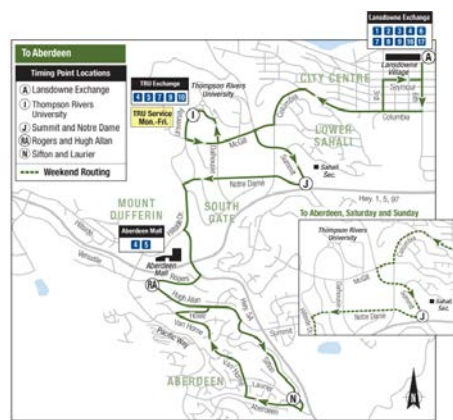


Fig16: Proposed routing



5.6 Route 7- Aberdeen



Transit Future Plan Recommendation: More direct service to TRU

Current Condition: The Route 7 connects downtown Kamloops with the Aberdeen neighborhood in South Kamloops through TRU. The route runs from 6 am to 11 pm during weekdays. This route does not serve TRU during the weekend due to lack of available run time.

The issue: There have been minor complaints about the Route 7 running late during the AM peak.

Analysis: Running time and load data for the route was collected. This data compares the actual running times with the scheduled running times. If there are running time issues, then the actual time taken to run a trip will be higher than the time scheduled for that trip.

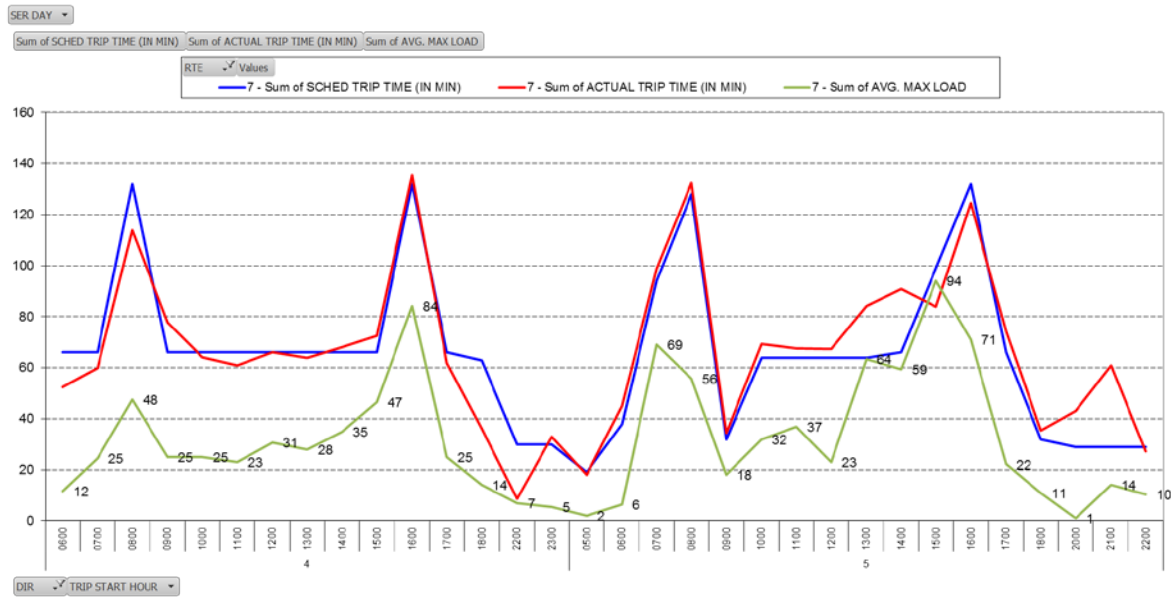


Fig17: Graph showing scheduled trip times versus actual trip times for both inbound and outbound trips for Route 7 against daily average loads

Inference: The graph above demonstrates that the time scheduled for trips on the Route 7 are adequate. Varying trip times during peak periods addresses the issue of crowding during peak periods.

Recommendation: Minor adjustments in route length might alleviate any On-Time Performance issues seen on this route. Since this route is the second route heading from TRU to Downtown, (the first one being Route 9), it would be ideal to reroute it to serve the neighborhoods adjacent to downtown i.e Sahali-Bestwick and Battle neighborhoods. The advantage of doing this are:

- 1) Sahali-Bestwick neighborhood: This neighborhood is currently served by the Route 4 from 7 am to 6 30 pm on weekdays and Saturdays. Fifteen trips during the weekday connect this neighborhood to either downtown Kamloops or to TRU, on weekdays and eleven trips on Saturday. If every alternate trip of the Route 7 were to serve this neighborhood on its way into downtown Kamloops, the coverage to this neighborhood would increase, without major costs being incurred. There would also be coverage on weekends, both Saturdays and Sundays. In the proposed scenario the number of trips to this neighborhood would increase to :
 - a. 20 trips during the weekday
 - b. 13 trips on Saturday and 6 trips on Sunday

This increased coverage comes at minimal additional cost.

- 2) The Battle-Strathcona neighborhood: The Battle-Strathcona neighborhood would lose transit coverage with the recommendation that the Route 8 be discontinued because of

low productivity. The Route 7 could serve this neighborhood on alternate trips into downtown Kamloops and provide the same service coverage being provided to the Sahali Bestwick neighborhood. The advantages of this routing are twofold :

- a. The Battle-Strathcona neighborhood gets a direct connection to TRU.
- b. This neighborhood also gets increased coverage compared to being served by the Route 8 – Battle on both weekdays and weekends.

It is anticipated that the increased coverage as well as connectivity will improve the ridership on this segment.

Revised routing: The following maps provide a comparison between proposed and existing routing for the Route 7. As is obvious, there are changes around the TRU area, where more direct service to TRU is being provided. Changes to the Sahali-Bestwick and Battle neighborhoods are as discussed above.

Fig18: Current routing

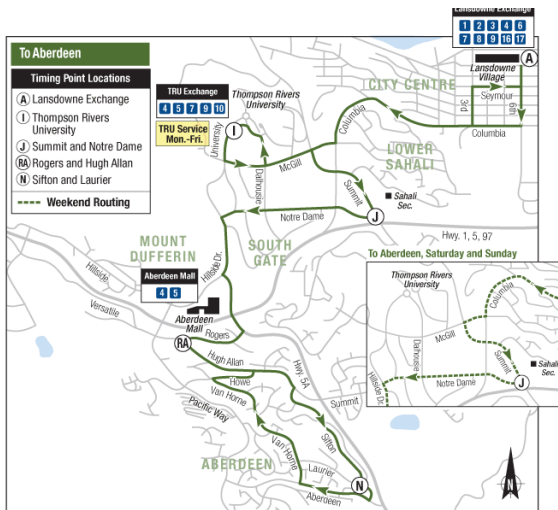
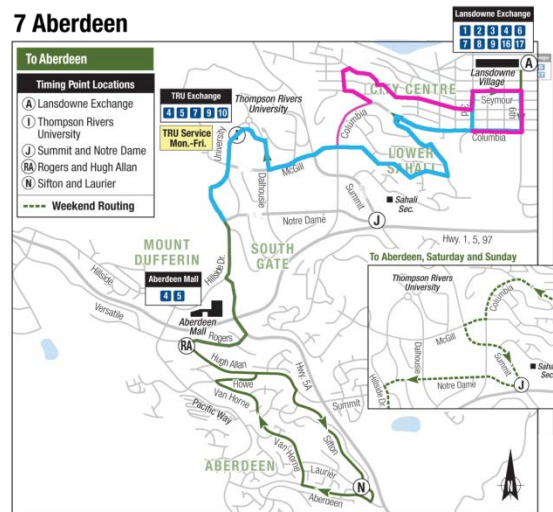
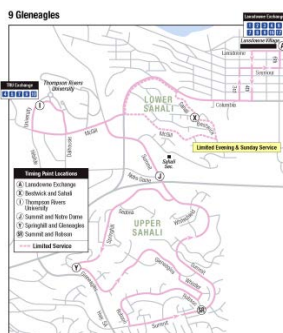


Fig19: Proposed routing



Savings: Based on very preliminary calculations it is estimated that this change in routing for the Route 7- Aberdeen would lead to some savings; the details are being currently being finalized.

5.7 Route 9-Gleneagles



Transit Future Recommendation: The TFP identified Route 9 as a route that should be part of the Frequent Transit Network. It recommended increasing the frequency of Route 9 to 15 minutes between 7 am and 7 pm. This was completed in 2012. No specific recommendations exist for Route 9 as part of phase II implementation.

Current condition: The Route 9, connects the Gleneagles neighborhood with downtown via TRU. This route is the highest productivity route in the Kamloops System, not only does it carry the most people annually, it also runs the most trips and most frequently.

The issue: In spite of its high frequency, this route has a lot of load as well as on-time performance issues especially in the AM peak.

Analysis: Running time and load data for the route was collected. This data compares the actual running times with the scheduled running times. If there are running time issues, then the actual time taken to run a trip will be higher than the time scheduled for that trip. Also some trip segments were checked for run times.

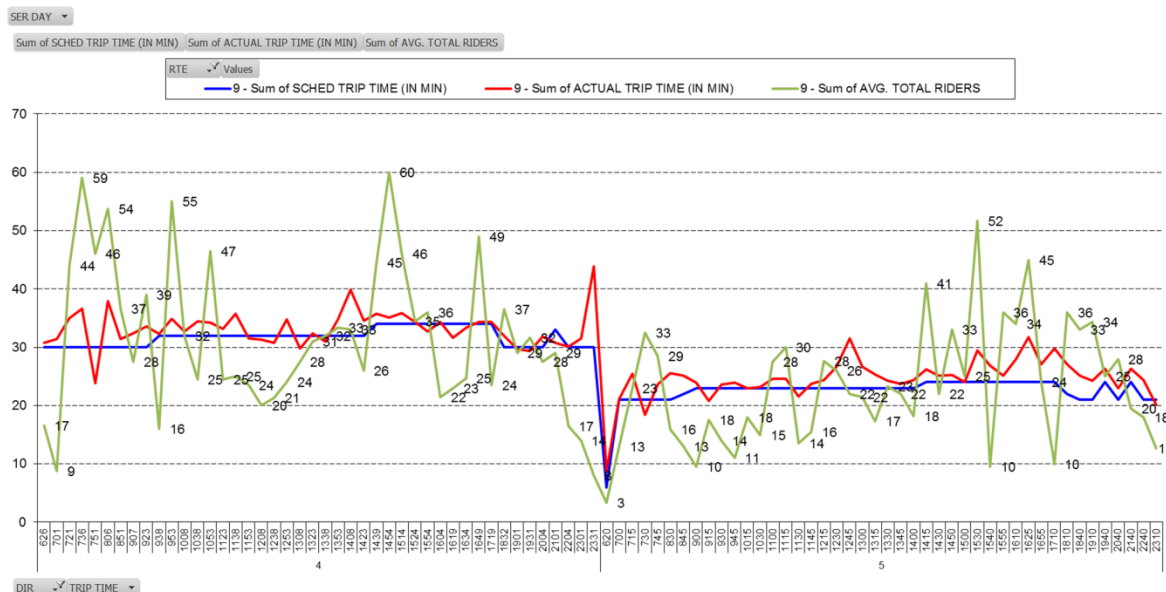


Fig 20: Graph showing scheduled trip times versus actual trip times for both inbound and outbound trips for Route 9 against daily average loads

Inference: Route 9 has some running time issues in the AM peak, between 7 am and 9 am and very high loads during that time as well.

Recommendation: With this being the only route heading directly into downtown Kamloops, after the modifications suggested to Routes 4 and 7, it is not possible to change/shorten the length of this route. The only changes possible are to frequency. An increase in frequency of this route, as well as balanced allocation of time between the different segments of this route could improve the On-Time performance of this route as well its reliability.

Revised routing: No changes to routing are being suggested to Route 9 at this point.

Costs: Increasing frequency of the Route 9, will add approximately 4000 revenue hours on an annual basis.

Consultation: The recommendations on this route are a direct result of what BC Transit heard at the consultation.

5.7 Route 14- Batchelor Heights



Transit Future Plan Recommendation: No specific recommendation

Current Condition: The Route 14-Batchelor Heights connects the neighborhood of Batchelor Heights to NorthShore Exchange. Trips run on weekdays, Saturday and Sunday. Service is intermittent and infrequent.

The issue: During the weekdays, there is a mid-day break in service for about four hours between 10 am and 2 30 pm.

Recommendation: Reduce this mid-day gap in service. Since there are challenges associated with additional revenue hours, it is recommended that single trips be added gradually to close this mid-day gap.

6.0 FUNDING

When this review was undertaken, it was assumed that the Provincial Budget for Fiscal Year 15-16 would allow for expansion in transit service as identified by TFPs or Service Reviews. The 6000 hour expansion to Kamloops Transit System based on Transit Future Plan recommendations was not only budgeted for by the Local Government, it was also budgeted for in BC Transit's Three Year Budget.

In February of 2015, the Provincial Government confirmed funding for BC Transit's base level budget. The 2015/16 budget does not have hours available for expansion. The 6,000 hour expansion cannot be implemented in September 2015.

7.0 FINAL RECOMMENDATIONS

Based on the analysis completed, the results of the consultation and the constraints in funding discussed above, the final recommendations for service changes to be implemented in September of 2015 are as follows:

Priority	Description	Routes targeted	Action
#1	Improve reliability	5 – Pineview 9 – Gleneagles	Adjust the scheduled run times to better reflect actual run times On Route 5, all Costco trips to travel eastbound on Versatile Drive
#2	Improve efficiency	8 - Battle	Reallocate the resources, without compromising service
#3	Reduce duplication of service	4 – Pacific Way	Shorten Route 4 to terminate at TRU
	More direct service to TRU	7 – Aberdeen	Re-route Route 7 to serve TRU directly and serve Sahali-Bestwick and Battle areas on alternate trips into downtown
#4	Improving peak period service	1 – Tranquille 9 – Gleneagles	Increase PM peak time service on Route 1 (minor increases) Increase AM peak time service on Route 9
#5	Reducing gaps in service	14 – Batchelor Heights	Reduce the four hour mid-day gap in the route 14 service by adding one additional trip in the afternoon and using Community Bus where possible.

Fig 21: Table showing final recommendations based on analysis, consultation and available funding

These recommendations follow a pattern of reductions and increases of revenue hours so that the net cost of recommended changes does not increase costs to the existing operations; effectively, making these solutions cost neutral to implement.

8.0 IMPLEMENTATION

Changes to the Kamloops Transit System recommended in this document will be implemented in September of 2015, pending approval by Kamloops City Council.



Fig 22: Diagram showing implementation schedule for the recommended changes, if approved by Council