



DATE: November 19, 2015
TO: Transportation Commission
FROM: Mark Imhoff, Director - Division of Transit & Rail
SUBJECT: Purchase Three New Bustang Buses

Purpose

The purpose of this memo is to seek approval from the Transportation Commission to purchase three (3) new Bustang buses.

Action

The Transit & Intermodal Committee discussed and deliberated this item at their October meetings, and made a formal recommendation to the TC to approve the purchase of three (3) new Bustang buses. A resolution is attached.

Background

The Bustang interregional express bus service went into operation July 13, 2015. The West Route is experiencing loads nearing capacity. As an interim solution, a second bus is being staged in Frisco as needed on the current scheduled run.

A fleet expansion is desired to provide flexibility for all three routes as demand grows. CDOT has a five year price agreement with MCI to purchase additional Bustang buses. Once ordered, and depending on the assembly line availability, delivery of new buses will take 9 to 12 months. FASTER Transit (Bustang) Roll-Forward funds will be used to cover the cost of the three buses.

Details

The Bustang operations team is monitoring the usage and loads of each route, including directional flows, on a daily basis. The results are being tabulated to track daily, weekly and monthly trends. When the average load factor trend for any given route reaches 40%, it likely means that some runs are exceeding 50%, and a more in-depth analysis begins to assess whether schedule additions need to be considered. The planning includes a schedule addition when the route reaches a 60% average load factor, unless the analysis indicates the need in an earlier timeframe. A critical element of the planning is whether the schedule addition can be accommodated with the existing fleet, or whether additional buses are required.

The Bustang Quarterly Report shows the ridership and load factor trends for the West Corridor. The current average weekly load factor has settled in at 50%, after exceeding 60% prior to Labor Day.

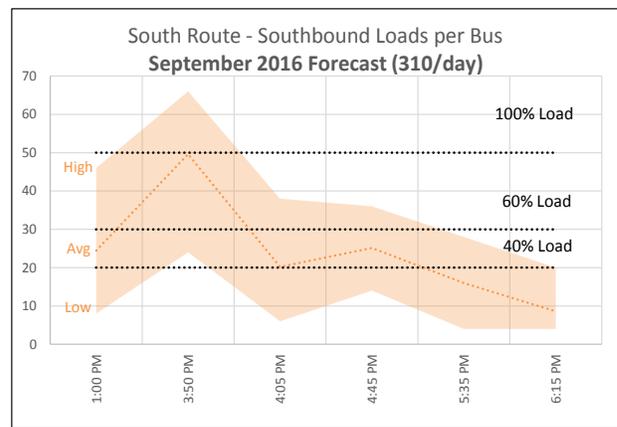
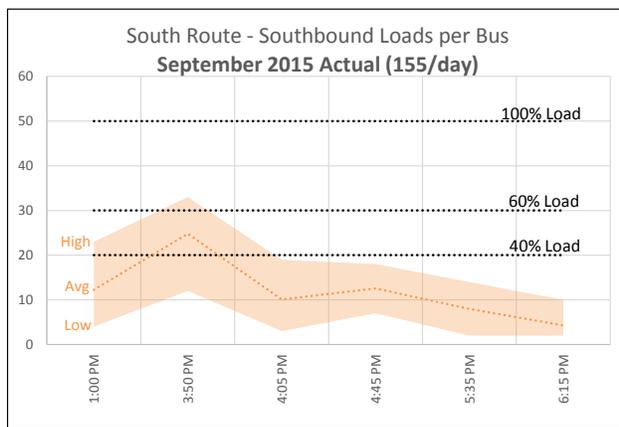
Between July 27 and August 21 the West Route eastbound average weekly load factor reached and maintained 63% in August with instances of the daily load factor reaching 85% on certain runs, indicating the need to make a schedule addition. As an interim solution, a second bus was being staged in Frisco as needed on the current scheduled run. This solution protects against an overload that could not be accommodated, but it added approximately 70 miles of deadhead at a cost of \$265/day. To better accommodate the West Route demand, a service addition to add a second round trip each day from Vail to DUS should be implemented, and at least one new bus ordered to allow the run addition. The second round trip adds the needed capacity to the West Route, and offers customers a second option



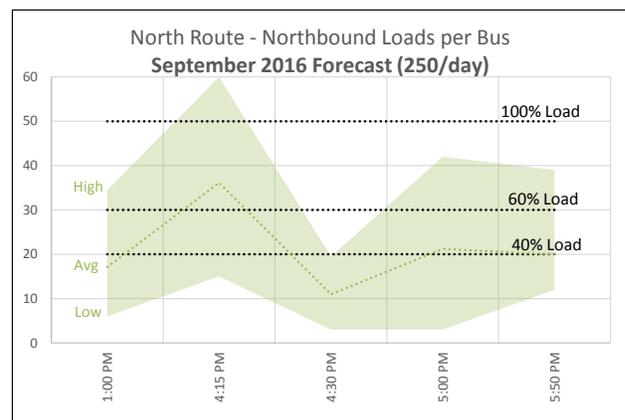
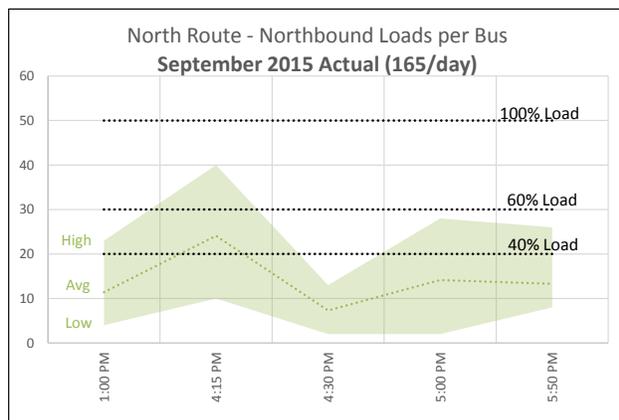
for their travel which likely will increase demand. Also, with a bus housed in Vail, the second round trip will eliminate the deadhead miles and costs that are being incurred on the interim solution of a staged bus in Frisco.

After three months of operation, the ridership has increased (July to September) by 34% on the West Route. 51% on the North Route, 54% on the South Route. As a point of reference, the FREX service at its conclusion was carrying 397 passengers/day compared to the Bustang South Route at 155 passengers/day. With the spare ratio requirement of 20% minimum, there is no flexibility to add service if/when we near a capacity threshold in any corridor.

A trend analysis has been conducted for the South Route by run to project daily ridership for September 2016, one year from now. The current South Route trend of ridership increase after three months of operation would project an increased ridership of nearly triple what it is today. While we expect ridership to continue to grow, we do not expect to sustain this level of increase month after month. For analysis purposes, we chose a doubling of ridership as a more obtainable level of demand over the course of the next year, which equates to approximately 80% of the previous FREX ridership from 2012. The graphs below show the ridership levels for the South Route southbound daily runs. The first graph depicts the current condition for September 2015, with the solid line representing the daily average for each run, and the shaded band representing the high and low days for the month. This analysis indicates the need for at least one additional bus by one year from today.



A trend analysis for the North Route was also conducted. A more conservative approach was taken given the smaller market size, the stability of the CSU campus, and lack of comparable past experience (like FREX for the South Route). For projection purposes a ridership increase of 1.5 was utilized, still significantly less than the current three month trend. The graphs below show the ridership levels for the North Route northbound daily runs. The first graph depicts the current condition for September 2015, with the solid line representing the daily average for each run, and the shaded band representing the high and low days for the month. The North Route analysis also indicates the need for one additional bus by one year from today.



Bus delivery is estimated at 9 to 12 months followed by a month of livery wrapping, installation of fare boxes and wifi, and testing. The West Route needs one more run and bus today. The South and North Route forecasting analyses indicate a likelihood of additional runs being needed by a year from now, hence needing two additional buses to accommodate. Ordering three buses now will give us the flexibility to deploy them as needed in 9-12 months when they are delivered. Ridership and operational trends will continue to be monitored and analyzed, and reported to the T&I Committee. Adding three (3) buses would increase the fleet to 16 buses. Assuming all three new buses would be deployed (one in each corridor), the number of vehicles operated in maximum service (VOMS) would be 13, with three spares; yielding a spare ratio of 23%. If the actual ridership growth does not justify the deployment of all three buses, the spare ratio would be increased until the demand warrants adding service. If, for example, only two of the three new buses were deployed, the VOMS would be 12, with four spares; yielding a spare ratio of 33%.

The impact on Bustang operating costs is shown in the two tables below. Table 1 shows the daily and annual operating costs for the South, North, West and total system, without fare revenue. The costs are portrayed for three scenarios: 1) the current operation; weekday service on all three routes. 2) the operation that will begin in November, adding weekend service to the West Route. 3) proposed service that could begin in November 2016 with one additional run on each route. Please note that Table 1 is illustrative as each scenario assumes consistent operation for a full year.

| System Annual Operating Cost (without Fare Revenue) | | | | | | |
|--|-------|-----------|---------------|-------------|-------------|---------------------|
| Timeframe | Route | days/week | Rndtrip miles | Rndtrps/day | Op cost/day | Op cost/year |
| 2015-current | South | 5 | 152 | 7 | \$ 4,606 | \$ 1,174,423 |
| 2015-current | North | 5 | 130 | 6 | \$ 3,243 | \$ 827,026 |
| 2015-current | West | 5 | 330 | 1 | \$ 1,320 | \$ 336,702 |
| 2015-current | Total | | | | | \$ 2,338,151 |
| Nov 2015 w/7 day West | South | 5 | 152 | 7 | \$ 4,606 | \$ 1,174,423 |
| Nov 2015 w/7 day West | North | 5 | 130 | 6 | \$ 3,243 | \$ 827,026 |
| Nov 2015 w/7 day West | West | 7 | 330 | 1 | \$ 1,320 | \$ 481,946 |
| Nov 2015 w/7 day West | Total | | | | | \$ 2,483,395 |
| Nov 2016 proposed | South | 5 | 152 | 8 | \$ 5,264 | \$ 1,342,198 |
| Nov 2016 proposed | North | 5 | 130 | 7 | \$ 3,784 | \$ 964,864 |
| Nov 2016 proposed | West | 7 | 330 | 2 | \$ 2,641 | \$ 963,892 |
| Nov 2016 proposed | Total | | | | | \$ 3,270,954 |



Table 2 then takes the System Annual Totals for the three scenarios and applies a range of farebox recovery ratios, from 20% to 50%, and calculates Net Annual Operating Costs. Farebox Recovery Ratios of 30%, 35% and 40% have been highlighted as the most likely range of utilization by fall 2016.

| Net System Annual Operating Cost | | | |
|---|-----------------------|------------------------------|--------------------------|
| Farebox Recovery | 2015 - current | Nov 2015 w/7 day West | Nov 2016 proposed |
| 20% | \$ 1,870,521 | \$ 1,986,716 | \$ 2,616,763 |
| 25% | \$ 1,753,613 | \$ 1,862,546 | \$ 2,453,215 |
| 30% | \$ 1,636,706 | \$ 1,738,377 | \$ 2,289,667 |
| 35% | \$ 1,519,798 | \$ 1,614,207 | \$ 2,126,120 |
| 40% | \$ 1,402,891 | \$ 1,490,037 | \$ 1,962,572 |
| 45% | \$ 1,285,983 | \$ 1,365,867 | \$ 1,799,024 |
| 50% | \$ 1,169,076 | \$ 1,241,698 | \$ 1,635,477 |

The cost of three additional buses, based on the MCI price agreement, is approximately \$588k/bus, or \$1.76M for three. The FASTER Transit (Bustang) Roll Forward from last year is \$4,097,796; representing unused funds from the Bustang FY2014 start-up budget and the FY2015 operating budget. These funds will be used to purchase the three new buses.

It is important to clarify and stress that staff believes three buses will be needed by fall 2016 to supplement the current service plan, however it is not known at this time where the best deployment will be needed. Over the course of the coming year, while buses are on order, we will continue to monitor, analyze and report the route utilization. Before any service can be added, the T&I Committee must concur; we will make those recommendations as we approach bus delivery. If however, the ridership demand does not justify the deployment of all three buses the spare ratio will be increased until deployment is justified.

PD 1605 requires the T&I Committee to evaluate and recommend capital expenditures to the TC for action. The T&I Committee made that recommendation at their October meetings.

Benefits

Purchasing three new buses will provide for increased service while maintaining an adequate fleet spare ratio. Also, with ridership rising, and the unknowns of where ridership will plateau, an increase in fleet of three buses will allow for a small increase in service, when ridership warrants, by the time the buses are delivered in 9 to 12 months.

Options and Recommendations

1. Approve the purchase of three new Bustang buses—**Staff and T&I Recommendation.**
2. Approve the purchase of one or two new Bustang buses. This is not recommended because it does not provide the flexibility to respond to ridership demand on a timely basis.
3. Manage within the existing fleet. This is not recommended because the West Route already justifies an additional run.

Next Steps

- With TC approval an order will immediately be placed for three new buses.
- The Bustang Operations team will present updates to the T&I Committee at each quarterly meeting to keep the Committee apprised of the service options for utilizing the additional three buses.



Resolution # TC-XXXX
Purchase three (3) new Bustang buses

WHEREAS, the Bustang interregional express bus service went into operation on July 13, 2015 with a fleet of 13 buses (including three spare buses).

WHEREAS, the Transportation Commission Policy Directive 1605 gives oversight responsibility to the Transit & Intermodal Committee, including recommendations to the TC for capital expenditures; and requires the TC to approve capital expenditures beyond the annual budget.

WHEREAS, the Bustang ridership has grown on the West Route to justify an additional daily run, and the trend for the North and south Routes indicate the need to additional runs by fall 2016.

WHEREAS, the current Bustang fleet is fully utilized with no buses available to add service during regular operation hours.

WHEREAS, CDOT currently has an active price agreement with Motor Coach Industries (MCI) to procure additional buses.

WHEREAS, the T&I Committee has assessed the current Bustang fleet utilization, and recommends the purchase of three (3) new Bustang buses.

NOW THEREFORE BE IT RESOLVED, the Director of Transit & Rail is hereby directed to procure three (3) new Bustang buses utilizing the current price agreement with Motor Coach Industries (MCI).

Herman Stockinger, Secretary
Transportation Commission of Colorado