RAPID RESPONSE VEHICLE (RRV) BUDGET NOTE REPORT

This report to City Council is in response to the following budget note included in the FY 2012-13 Adopted Budget:

Rapid Response Vehicle (RRV) Pilot Program

Portland Fire & Rescue will present a report to Council by October 31, 2012, after the pilot program has been in operation for six months. The report will include information including the metrics used for assessing the program, analysis of the types of calls to which the RRVs responded during the pilot, average response time data of the RRVs, and response time and reliability of the non-RRV bureau response units during the pilot program period. The bureau should also provide comparative response and reliability data for the periods of when the RRVs were operating (7am-7pm) and when the RRVs were not in operation (7pm-7am).

PROGRAM BACKGROUND

The Rapid Response Vehicle (RRV) Pilot Program was implemented on April 12, 2012, in an effort to:

- Improve response reliability and response times for critical fire and emergency response apparatus
- Reduce mileage, therefore wear and tear, on more expensive apparatus
- Save fuel, maintenance and replacement costs

The response criteria for the RRVs were originally envisioned to consist of nonemergency responses ("9" type codes), which are generally for public assistance. However, upon closer inspection of current and historical data, non-emergency calls were ultimately found to represent a very low number of calls for service. To ensure that the program operated at the highest possible level of efficiency, and that the program had the greatest impact on response reliability and response times, PF&R gained approval from the Multnomah County Emergency Medical Director/PF&R Physician Supervisor to expand the RRV response criteria. This expansion included a limited number of emergency responses ("3" type codes) that typically do not require Advanced Life Support (ALS) measures, specialized equipment or additional resources, such as, General Sick ("SK3"), Trauma ("TR3"), and Abdominal ("AB3") calls; however, do require emergency assessment from a trained responder. In the past, these were the call types that PF&R's Basic Life Support (BLS) Rescues would have responded to. Due to the emergency nature of type "3" calls, and need for timely arrival and assessment, BOEC keeps the dispatch of "3" type calls within the pre-assigned Fire Management Area (FMA) and the RRVs respond with lights and sirens ("Code 3").

The Pilot Program began with four RRVs. Three vehicles were staffed with two Firefighter EMTs (Basic Emergency Medical Technicians) each. The vehicles were located at Stations 1, 19, and 30 and were initially designated to provide response to lower priority calls supported with BLS response Monday through Thursday from 8:00 am to 6:00 pm.

A fourth vehicle, RRV11, was located at Station 11 in SE Portland, and was staffed with one Firefighter EMT and one Firefighter Paramedic. RRV11 responded to the same criteria as the other RRVs Monday through Thursday from 8:00 am to 6:00 pm, but also provided ALS response outside of the operational hours of the Pilot Program.

On July 5, 2012, the number of RRVs was reduced from four to two vehicles due to budget cuts.

RESPONSE VOLUME & CALL TYPES

Table 1 presents the response volume from April 12, 2012, thru September 30, 2012. As stated earlier, the Pilot Program initially operated with four RRVs from April through June and responded to 481 calls, or 14.6 calls per day. In July, the number of RRVs was reduced from four to two due to budget cuts; RRV11 and RRV19 responded to 177 calls (11.1 per day) in July, 150 calls (8.3 per day) in August, and 130 calls (8.1 per day) in September.

Unit	April–June 2012	July 2012	August 2012	September 2012	April–September 2012
RRV1	158				158
RRV11	115	85	66	57	323
RRV19	125	92	84	73	374
RRV30	83				83
TOTAL	481	177	150	130	938
Average Response Per Day	14.6	11.1	8.3	8.1	11.3

TABLE 1 – RESPONSE VOLUME

RRVs 11 and 19 are dispatched and respond to "9" type calls (lower priority) throughout the city when it is estimated they can arrive on scene within a 20-minute timeframe. Fire personnel reject calls when, given their location and time of day or traffic congestion, they determine they will be unable to arrive in within that timeframe. As discussed in the Program Background section above, some higher priority "Code 3" (lights/siren) calls were added to further improve the effectiveness of the program, particularly in terms of response reliability and response times for higher priority emergencies. However, we also see a number of calls where the units are either cancelled (generally due to inability to meet response time standards) or require response from additional units for more assistance in the form of personnel and/or specialized skills and equipment. Table 2 presents the most frequent call types from April 12, 2012, thru September 30, 2012.

Call Type	April–June 2012	July 2012	August 2012	September 2012	April–September 2012
Trauma	84	22	16	19	141
Public Assist	40	21	42	35	138
Unknown	42	19	19	19	99
Sick	48	18	7	11	84
TOTAL	214	80	84	84	462

TABLE 2 – CALLS FOR SERVICE

RESPONSE RELIABILITY

Table 3 presents the RRV Pilot Program's impact on response reliability. The response reliability of Stations 1 and 30 improved with the additional resources that the Pilot provided and then quickly deteriorated after the RRVs were eliminated from these stations.

The response reliability of Stations 11 and 19 declined because the RRV program resulted in a reduction of resources. Prior to the Pilot Program, PF&R operated two Rescues to assist Stations 11 and 19 with their high call volume and lagging response reliability. Each of these Rescues was staffed 24 hours, 7 days a week. When the Pilot Program began in April 2012, the 24/7 Rescue staffing model at Station 19 was reduced to the 10-hour, 4 days a week RRV model. At the same time, Rescue 11 was reconfigured to operate as an RRV during the official Pilot hours (8am-6pm) and to function as a Rescue between 6pm-8am, assisting with high call volumes.

In July 2012, all Rescue operations were discontinued due to budget cuts. The number of RRVs was also reduced from four to two vehicles, requiring the two remaining RRVs to be deployed over a much larger geographic area, further degrading response reliability of Stations 11 and 19.

Unit	7/2011 - 4/2012	4/2012 - 6/2012	7/2012 - 10/2012				
Station 1	96.2%	98.2%	96.3%				
Station 11	96.0%	96.0%	90.0%				
Station 19	96.2%	91.3%	89.2%				
Station 30	89.3%	90.9%	88.5%				

TABLE 3 – RESPONSE RELIABILITY IMPACT

RESPONSE TIMES

The response times of the RRVs are shown in Table 4. The RRVs have longer response times than engines or trucks primarily because the RRVs respond to calls outside the FMAs of their home stations. Also worth noting is that RRV19 has substantially longer response times because it covers a significantly larger geographic area than the other RRVs.

Unit	Period	Response Time at 90th Percentile	Note
RRV1	4/12/12 - 7/4/12	13:37	RRV1 ended 7/4/12 due to budget cuts.
RRV11	4/12/12 - 10/31/12	11:10	
RRV19	4/12/12 - 10/31/12	16:34	
RRV30	4/12/12 - 7/4/12	10:52	RRV30 ended 7/4/12 due to budget cuts.

TABLE 4 - RRVS' RESPONSE TIMES

The RRVs likely have a positive impact on response times of front-line emergency apparatus in the RRVs' response areas. However, we do not yet have sufficient data to show this impact. For example, the deployment of RRV30 did not decrease the response times of Engine 30 over the three-month period from April 12 through July 4, 2012. Actually, Engine 30's response time at 90th percentile during that period was slightly longer than that for the following three months from July 5 through October 31, 2012. While RRV30 should have a positive impact on Engine 30's response times over the comparison period. As previously noted, Station 30's response reliability did improve with the RRV.

As shown in Table 5, engines and trucks at the stations where the RRVs are based had slightly shorter emergency response times when the RRVs were operating (8am-6pm) compared to when the RRVs were not in operation (6pm-8am). However, at this time we are not certain how much the decrease in response times is attributable to the RRVs. The decrease may be simply due to the different time of day; response times at night are typically longer than response times during the daytime because of a longer turnout time at night.

		Response Time at 90th Percentile		
Unit	Period	Day (8am-6pm)	Night (6pm-8am)	
E1 & T1	4/12/12 - 7/4/12	5:52	6:13	
E11	4/12/12 - 10/31/12	7:10	7:29	
E19	4/12/12 - 10/31/12	6:46	6:49	
E30	4/12/12 - 7/4/12	6:54	7:16	

 TABLE 5 – RESPONSE TIMES COMPARISON

Unlike response reliability, response time is a measurement influenced by many complex factors including: availability of first-due apparatus, call volume, other incidents in progress, workload of neighboring stations, time of day, traffic (congestion), traffic-calming devices, weather, and topography.

MILES TRAVELED & SAVED

Table 6 and Figure 1 present the miles traveled by RRVs 11 & 19 and the mileage savings of first-due apparatus that would have responded from July 1, 2012, thru September 30, 2012.

	RRV11	RRV19	TOTAL
July 2012	235	456	691
August 2012	266	367	633
September 2012	190	287	477
TOTAL MILES	691	1110	1801
20	First Due Savings	First Due Savings	TOTAL
July 2012	26	88	114
August 2012	34	115	149
September 2012	23	44	67
TOTAL MILES	83	247	330

TABLE 6 – MILES TRAVELED

If RRV11 and RRV19 were put into service for 24 hours, we could reasonably expect these units is to average 16 to 20 responses per day.



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COST PER MILE ESTIMATES

Table 7 presents rough cost per mile estimates for RRVs, engines and trucks.

	Gas Mileage	Gasoline/ Diesel Price	Fuel Cost per Mile	Maintenance/Repai r Cost per Mile	Replacement Cost per Mile	Total Cost per Mile
RRV	16	\$4.00	\$0.25	\$0.32	\$0.50	\$1.07
Engine	3.5	\$4.20	\$1.20	\$1.86	\$4.00	\$7.06
Truck	2.5	\$4.20	\$1.68	\$3.78	\$7.38	\$12.85
Engine (30) Truck (9) Blended Rate						\$8.40

TABLE 7	- COST	PER MILE	ESTIMATES
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In multiplying the \$1.07 Total Cost per Mile to run an RRV by the 1801 miles traveled by RRVs 11 &19 from July thru September (Table 6), we estimate that the two RRVs cost \$1,927 over the three-month period. If there were no RRVs, first-due engines or trucks would have traveled approximately 330 miles to respond to those calls, resulting in an apparatus cost (fuel, maintenance, & replacement) of approximately \$2,768 (330x8.40). As a result, the net apparatus cost savings from RRVs 11 & 19 is estimated to be approximately \$841 over three months.

CONCLUSION

The RRV Pilot Program was initially conceived to respond to lower priority, nonemergency calls. Upon closer inspection of current and historical call data, PF&R determined that the exclusive deployment of RRVs to low-priority calls would have minimal impact on the wear and tear of front-line emergency apparatus and most importantly, on response reliability and response times. In order to enhance Program efficiency, PF&R worked with the Multnomah County Emergency Medical Director/PF&R Physician Supervisor to enhance the RRV call types to include a limited range of emergency calls for service. PF&R sought this enhancement in an effort to improve response reliability and response times for higher priority calls, therefore improving the effectiveness of the program.

PF&R has implemented numerous adjustments to the Pilot Program over the past several months in an effort to refine RRV performance. While these refinements have been constrained by the loss of PF&R's Data Analyst position during the budget cuts of FY 09-10, we continue to emphasize to our fire crews the critical role that accurate record-keeping plays in our comprehensive data analysis, and also improve our ability to gather important data.

Our data shows that the addition of RRVs improved response reliability. RRVs should also improve response times. However, we do not yet have sufficient data to demonstrate the decrease of response times. As indicated earlier, response times are influenced by many factors such as availability of first-due apparatus, call volume, traffic (congestion),

traffic-calming devices, weather, and topography. A longer period and additional analysis are needed to evaluate the RRV impact on response times.

RRVs do decrease the mileage of more expensive apparatus, fire engines and ladder trucks. Each RRV could reduce PF&R's apparatus fuel, maintenance/ repair, and replacement costs by approximately \$1,300 per year. Most importantly, RRVs provide relief to demands on the emergency apparatus required to respond during a variety of life-threatening emergencies.

We believe the RRV model fits well into PF&R operations as the vehicles assist us in meeting the pressing challenge of enhancing our response reliability and response time standards throughout the city. We believe the positive impacts of the Pilot Program would be magnified if the units were staffed 24/7. It is important to note, however, that each vehicle serves a very different function and has its appropriate place and use; the fire apparatus cannot be substituted by RRVs in most emergencies, such as fires, critical medical calls, traffic accidents, pin-ins, and Hazardous Materials incidents, etc. Nevertheless, when used to augment fire apparatus on lower priority calls, RRVs improve emergency response reliability to our community.

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1255

Agenda No. REPORT NO.



AGENDA

TIME CERTAIN

Start time: ____

Total amount of time needed: _______(for presentation, testimony and discussion)

CONSENT

REGULAR X Total amount of time needed: 15 minutes (for presentation, testimony and discussion)

FOUR-FIFTHS AGENDA	COMMISSIONERS VOTED AS FOLLOWS:		
		YEAS	NAYS
1. Fritz	1. Fritz	\checkmark	
2. Fish	2. Fish	V	1.
3. Saltzman	3. Saltzman	\checkmark	
4. Leonard	4. Leonard		
Adams	Adams		