

FEIS Modeling Transit Results
Preliminary - Total Route Boardings Only

					FEIS Results						
Type	Technology	Route	Description		No-Action_d	A	B	PA-5_b	4_Phase 1_B	2015 Phase 1	
<i>Model Run Name</i>								<i>PA-5_b</i>			
Major Routes	Rail	FC_DUS	Ft. Collins to DUS	Commuter Rail		4,175		2,719			
	Rail	Erie Extension	Erie Extension	Commuter Rail - Erie Extension							
	Comm Bus	Greeley_DUS	Greeley to DUS	Greeley Commuter Bus to Denver		1,185		380	377	188	
	Comm Bus	GLY_DIA	Greeley to DIA	Greeley Commuter Bus to DIA		437					
	Comm Bus	PLTVLE_DUS	Platteville to DUS								
	BRT	FC_DUS	Ft. Collins to DUS	Fort Collins Express Bus to Denver			3,467				
	BRT	Greeley_DUS	Greeley to DUS	Greeley Express Bus to Denver			3,002				
	BRT	FC_DIA	Ft. Collins to DIA	Fort Collins Express Bus to DIA			359				
	EB	GLY_DUS							1,571	1,019	542
	EB	SH119_DUS							460	651	355
	EB	FC_DIA									
	EB	CR8_DIA (P1-SH7)							274	67	20
EB	FC_DUS_ALL (P1-MD)							705	1,430	605	
EB	FC_DUS_EXP (P1-PK)							399	831	433	
Total Major Route Boardings					0	5,797	6,828	6,508	4,375	2,143	
Feeder Routes		FLNWOT	Ft. Lupton to Niwot								
		PVLGMT	Platteville to Longmont								
		GRLYFC	Greeley to Ft. Collins			1,212					
		GRLYLVLD	Greeley to Loveland			2,382					
		52FDR	Firestone, Fred., Dacono, Erie			366					
		MJBFDR	Milliken-Johnstown-Berthoud			243					
		FTLupton	Ft. Lupton Feeder				413				
		JnsTwnFdr	Johnstown Feeder				508				
		LovelandFdr	Loveland Feeder				463				
		Windsor Feeder	Windsor Feeder				306				
		FFD_FEEDER									
		MillJohnBer							245		
		TimWindFdr							384		
		ERIE_FEEDER							548		
	FTLupton_FDR							483			
Total Feeder Route Boardings					0	4,203	1,690	1,660	-	-	
RTD Routes		120I	Limited, DUS to Wagon Road								
		120x	Express, DUS to Wagon Road								
		AA	SkyRide								
		AB	SkyRide								
		LX	North Metro								
		DUS124,DUSH7	North Metro		15,170	11,825	11210	13,152			
		DUS30, DUSLM	Northwest		8,650	8,953	7775	7,795			
Total RTD Route Boardings					23,820	20,778	18,985	20,947	0	0	
Total All Route Boardings					23,820	#REF!	47,874				

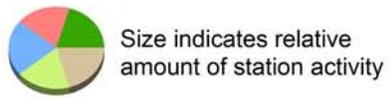
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LEGEND

Station Activity by Access/Egress Type

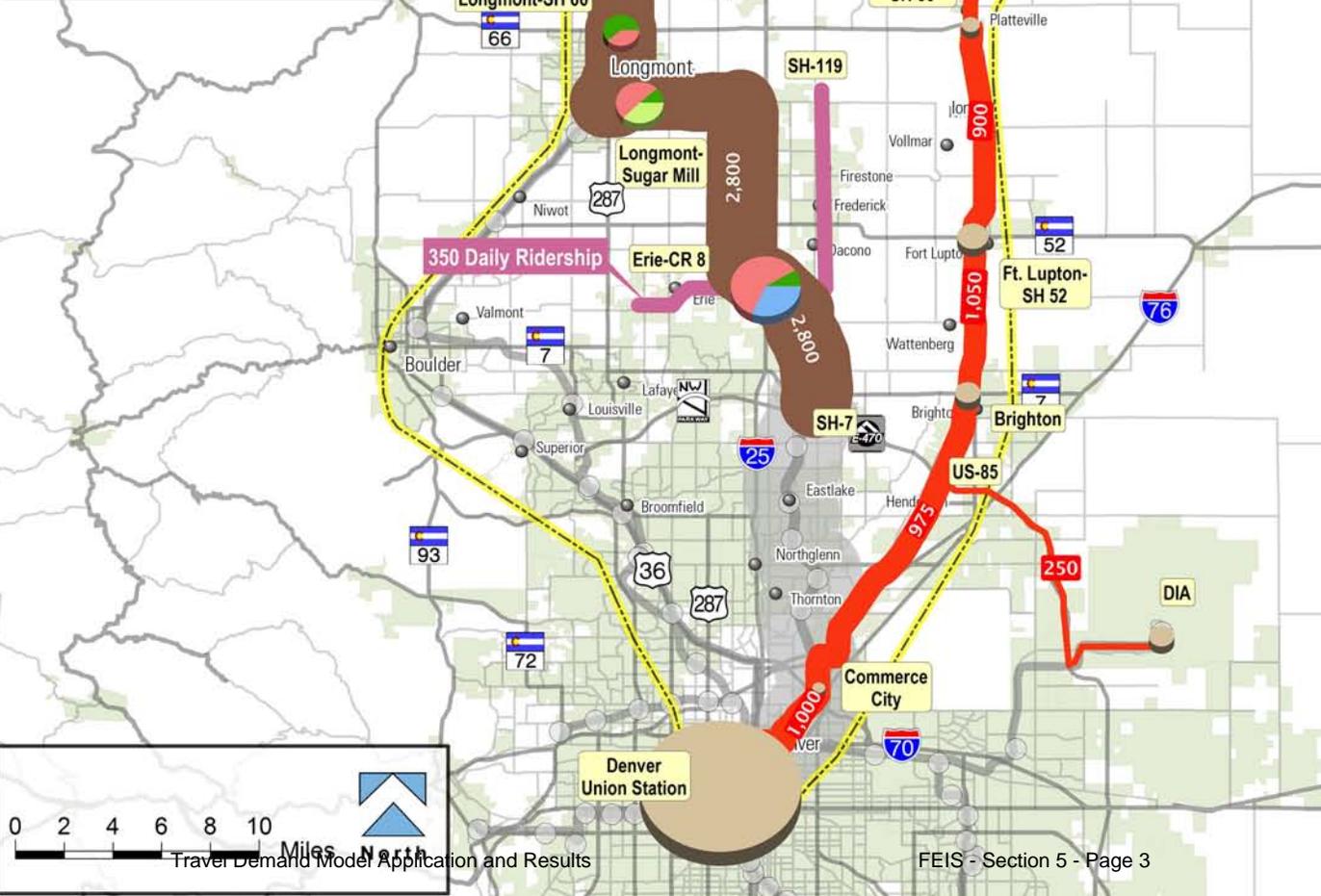


- Walk
- Drive
- Bus
- Rail

Transit Alignments

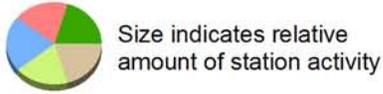
- Commuter Rail Alignment
- Commuter Bus Alignment
- Thickness and value shown indicate relative amount of activity on transit line
- RTD FasTracks Stations
- RTD FasTracks Corridors
- North I-25 Feeder Bus Routes
- Highways
- Arterial Roads
- Regional Study Area
- City Boundaries
- Cities & Towns in Project Area

Source: North I-25 Travel Demand Forecast Model Run Package B, September 2006



LEGEND

Station Activity by Access/Egress Type



- Walk
- Drive
- Bus
- Rail
- Various

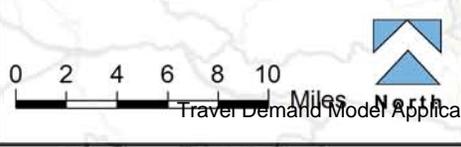
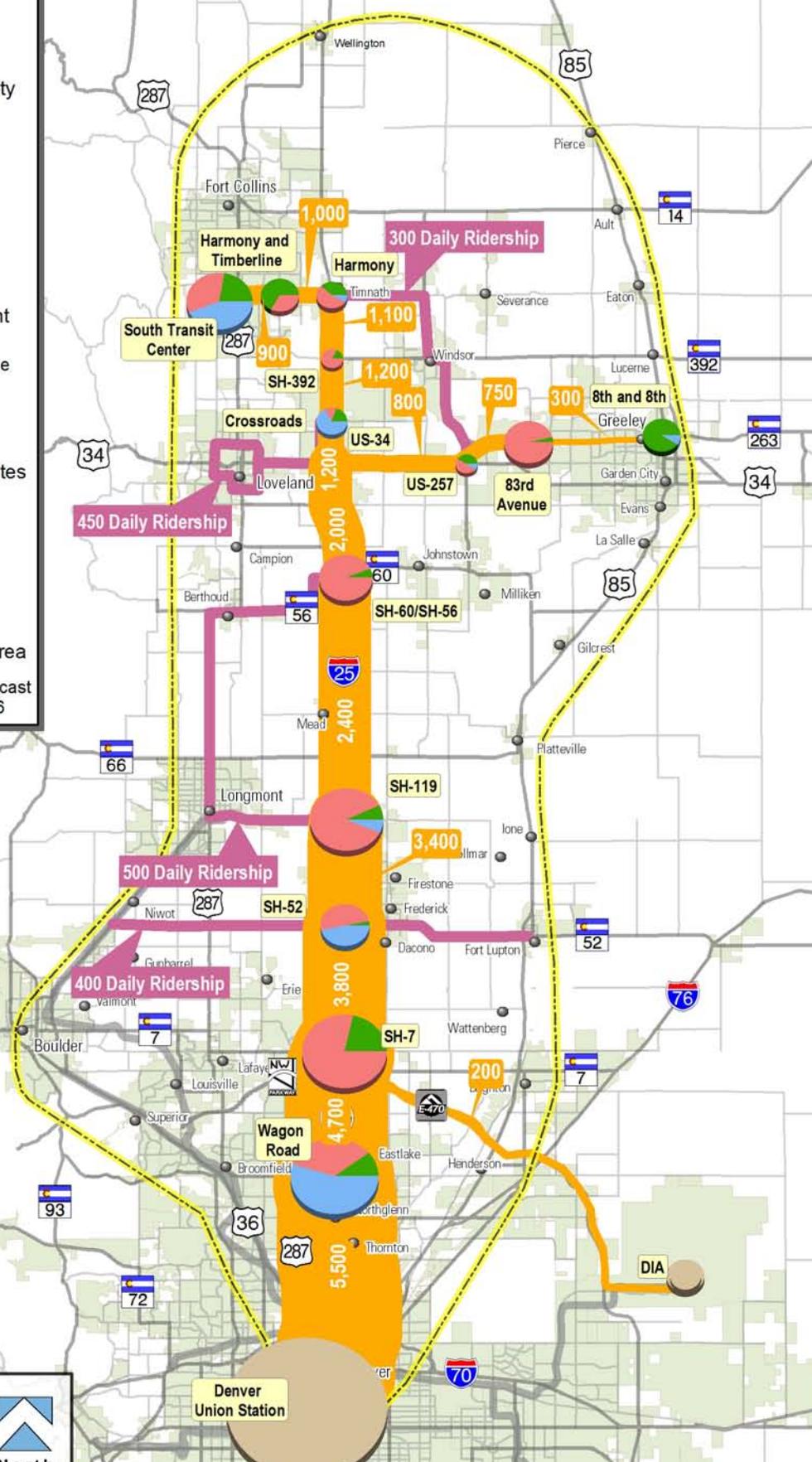
Transit Alignments

▬ Bus Rapid Transit Alignment

Thickness and value shown indicate relative amount of activity on transit line

- RTD FasTracks Stations
- ▬ RTD FasTracks Corridors
- ▬ North I-25 Feeder Bus Routes
- ▬ Highways
- ▬ Arterial Roads
- Regional Study Area
- + City Boundaries
- Cities & Towns in Project Area

Source: North I-25 Travel Demand Forecast Model Run Package B, September 2006



	Southbound	Northbound
Greeley to DUS CB	4659	4658
SH 7 to DIA	4739	4738
FC to DUS Express	4816	
FC to DUS Mid Day	4820	4821
SH 119 to DUS	4822	
Greeley to DUS EB	4824	4825

STOP_ID	MILEPOST	ROUTE_ID	ALLONS	ALLOFFS	ALLONS	ALLOFFS	Total Ons	Total Ons	Boardings + Alightings
Commuter Bus									
Greeley North	57.395882	4658	0	9	7	0	7	9	16
Greeley Downtown	56.170876	4658	1	24	72	2	73	26	99
Greeley South	54.173397	4658	3	15	96	0	99	15	114
Evans - 37th Street	51.922844	4658	2	4	81	0	83	4	87
Platteville - SH-66	37.786770	4658	7	0	9	2	16	2	18
Ft. Lupton - SH-52	28.852089	4658	1	0	7	0	8	0	8
Brighton	22.337196	4658	11	1	50	11	61	12	73
Commerce City	8.539355	4658	6	0	0	8	6	8	14
DUS	0.000000	4658	23	0	0	299	23	299	322
Bus to DIA									
SH7	24.134993	4738	0	5	62	0	62	5	67
DIA	0.000000	4738	5	0	0	62	5	62	67
Express Bus - Black									
Harmony	0.000000	4816	632	0			632	0	632
SH7	36.725933	4816	199	1			199	1	200
DUS	54.471088	4816	0	830			0	830	830
Express Bus - Black									
Harmony	0.000000	4820	322	0	0	83	322	83	405
SH 119	25.714914	4820	290	0	2	43	292	43	335
SH 7	36.809212	4820	150	61	37	542	187	603	790
DUS	54.554367	4820	0	701	630	0	630	701	1331
Express Bus - Blue									
SH 119	0.000000	4822	651	0			651	0	651
DUS	28.749752	4822	0	651			0	651	651
Express Bus - Orange									
Greeley Downtown	0.000000	4824	168	0	0	33	168	33	201
83rd	6.499942	4824	353	0	2	6	355	6	361
SH 7	44.800419	4824	149	1	2	311	151	312	463
DUS	62.545574	4824	0	669	346	0	346	669	1015

Totals									
Harmony			954	0	0	83	954	83	1037
SH 119			941	0	2	43	943	43	986
SH 7			498	63	39	853	537	916	1453
83rd			353	0	2	6	355	6	361

Preferred Alternative Boardings by Station and Line Loads

Express Bus	Preferred Alternative					
STATION	ALLONS	ALLOFFS	Boardings + Alightings	Line Load		Rounded
STC	9	10	19	19		25
TIMBERLINE	21	5	26	35		25
HARMONY	111	27	138	138		150
WINDSOR	60	24	84	174		75
CROSSROADS	3	40	43	137		50
GREELEY DT	183	52	235	235		225
83RD	352	4	356	583		350
SH-257	31	36	67	578		75
SH-56	192	20	212	887	715	200
SH-119	500	20	520	1367		525
SH-52	21	3	24	1385		25
CR-8	378	7	385	1756		375
SH-7	926	925	1851	1757		1850
DUS	608	2152	2760	213		2750
DIA	13	84	97			100
Total	3408	3409	6817			6800

Commuter Rail	Preferred Alternative		
STATION	ALLONS	ALLOFFS	Boardings + Alightings
NTC	92	45	137
CSU	80	51	131
STC	804	116	920
LOVELAND 29TH	363	38	401
LOVELAND DT	320	88	408
BERTHOUD	131	33	164
SH-66	156	42	198
SUGAR MILL	289	196	485
CR-8	137	156	293
Total	2372	765	3137

Package A Boardings by Station

	2030	2035	Difference
FC-NTC	410	498	88
FC-CSU	287	336	49
FC-STC	738	875	137
LVL D 29th	453	460	7
LVL D US 34	584	539	(45)
Berthoud	196	183	(13)
SH 66	155	182	27
Sugar Mill	418	353	(65)
Erie	1,079	748	(331)
	4,320	4,175	-145.181

	2,030	2035	Difference
DUS	2,400	2700	300
Wagon Road	200	800	600
SH-7	600	750	150
SH-52	350	250	-100
SH-119	750	550	-200
SH-56/60	300	300	0
Greeley - SH-257	50	50	0
Greeley - 83rd	200	250	50
Greeley - 8th/8th	150	150	0
Crossroads	100	100	0
SH-392	50	50	0
SH-68	100	100	0
Harmony/Timberline	200	150	-50
South Transit Cent	300	450	150
DIA	100	150	50
Total	5,850	6800	950

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Preferred Alternative Route Flows

Bus

4658 Greeley to DUS CB NB
 4659 Greeley to DUS CB SB
 4738 CR8 to DIA Exp. NB
 4739 CR8 to DIA Exp. SB
 4740 119 to DUS Exp. NB
 4743 119 to DUS Exp. SB
 4767 FC to DUS Exp. SB
 4769 FC to DUS Exp. NB
 4777 FC to DUS AllStop SB
 4778 FC to DUS AllStop NB
 4810 Greeley to DUS Exp. SB
 4811 Greeley to DUS Exp. NB

Commuter Rail

4714 DUS SH7 NB
 4715 DUS SH7 SB
 4798 DUS FC NB
 4799 DUS FC SB

ID	MILEPOST	ROUTE_ID	TO_STOP	PW_FLOW	PD_FLOW	OW_FLOW	OD_FLOW	ALLFLOWS	PK_FLOWS	OP_FLOWS
209575	0.000000	4658						0	0	0
209577	8.539355	4658	209577	2.2590	0.0231	15.9898	1.3000	20	2	17
209615	19.654284	4658	209615	3.4539	0.4204	17.6580	3.0638	25	4	21
209580	23.457317	4658	209580	3.5733	0.4027	18.1440	3.0526	25	4	21
209581	29.972210	4658	209581	8.5272	2.6358	21.9661	5.3520	38	11	27
209582	38.906891	4658	209582	6.3248	3.1976	20.5286	5.7500	36	10	26
209583	53.042965	4658	209583	9.0005	4.0638	22.0061	6.5928	42	13	29
209576	55.293518	4658	209576	7.6575	3.6941	21.8322	7.2697	40	11	29
209578	57.290997	4658	209578	6.6285	2.1396	16.0108	5.0891	30	9	21
209579	58.516003	4658	209579	3.9320	0.0000	5.2589	0.0000	9	4	5
209591	0.000000	4659						0	0	0
209590	1.225009	4659	209590	0.5898	0.4108	3.0945	5.9937	10	1	9
209589	3.222486	4659	209589	2.4859	0.0698	63.7785	5.4289	72	3	69
209588	4.986763	4659	209588	4.7798	0.6674	90.8583	57.4778	154	5	148
209587	19.122833	4659	209587	6.3217	1.1086	105.9152	121.2726	235	7	227
209586	28.057516	4659	209586	9.6750	1.1105	107.7468	127.0255	246	11	235
209585	34.651291	4659	209585	13.6917	1.1419	118.1958	127.0373	260	15	245
209616	38.510601	4659	209616	10.2024	0.1973	146.3636	147.2788	304	10	294
209584	49.681816	4659	209584	8.2671	0.0326	146.5584	147.1888	302	8	294
209592	58.388523	4659	209592	7.4116	0.0000	141.5713	146.3155	295	7	288
210689	0.000000	4738						0	0	0
210690	15.083793	4738	210690	0.0281	0.0115	9.0419	1.6336	11	0	11
210688	24.543463	4738	210688	1.4187	0.0002	10.8875	1.6293	14	1	13
210698	28.316982	4738	210698	0.5710	0.2156	2.1998	0.4366	3	1	3
210699	0.000000	4739						0	0	0
210693	3.503619	4739	210693	26.5869	68.1893	52.5039	47.0731	194	95	100
210692	13.513439	4739	210692	0.1356	0.0190	75.4750	0.0161	76	0	75
210691	29.471907	4739	210691	3.9093	0.0000	77.1078	0.0000	81	4	77
210700	0.000000	4740						0	0	0
213242	23.803385	4740	213242	4.9494	0.8404			6	6	0
210840	28.825212	4740	210840	4.9293	4.8319			10	10	0
210843	0.000000	4743						0	0	0
213240	5.005355	4743	213240	82.2686	388.5439			471	471	0
210717	28.893250	4743	210717	90.3984	387.9998			478	478	0
211199	0.000000	4767						0	0	0
211198	3.978155	4767	211198	40.9182	42.0257			83	83	0
211195	6.325436	4767	211195	42.7723	62.5678			105	105	0
211197	37.202717	4767	211197	32.3117	55.9381			88	88	0
211196	54.977909	4767	211196	115.9368	178.7573			295	295	0
211210	0.000000	4769						0	0	0
211212	17.657108	4769	211212	8.1148	1.6088			10	10	0
211211	48.449577	4769	211211	8.1619	1.8777			10	10	0
211209	50.796856	4769	211209	8.8552	3.0269			12	12	0
211213	54.800560	4769	211213	17.7581	1.7339			19	19	0
211450	0.000000	4777						0	0	0
213244	2.203713	4777	213244	1.4209	0.4548	7.1160	1.1319	10	2	8
211435	4.219940	4777	211435	3.1184	0.8961	25.5622	2.6013	32	4	28
211438	8.198095	4777	211438	6.6656	2.1448	33.2534	13.6725	56	9	47
211440	10.545377	4777	211440	3.7446	1.8777	34.3134	18.2528	58	6	53
211434	20.103346	4777	211434	3.7348	1.9422	28.3524	20.1253	54	6	48
211436	30.426819	4777	211436	1.4675	0.3828	37.1662	36.8032	76	2	74
213241	35.432175	4777	213241	13.6632	0.0280	81.2964	36.7102	132	14	118
211437	38.871407	4777	211437	15.2794	0.0000	86.7424	36.5815	139	15	123
211439	42.375027	4777	211439	41.3530	68.1803	119.1228	83.6405	312	110	203
211441	60.150219	4777	211441	42.3519	61.5053	152.2632	36.4361	293	104	189
211446	0.000000	4778						0	0	0

211449	17.657108	4778	211449	0.0000	0.0000	87.4257	18.7270	106	0	106
211443	21.430628	4778	211443	1.4089	0.2156	9.9716	2.2769	14	2	12
213243	25.163267	4778	213243	2.2409	0.0000	9.3009	2.4312	14	2	12
211447	30.185095	4778	211447	1.8714	0.0000	8.9390	2.3779	13	2	11
211448	40.495052	4778	211448	0.5730	0.0827	4.9085	0.6991	6	1	6
211445	49.979172	4778	211445	9.3448	1.5811	12.0186	2.2696	25	11	14
211444	52.326450	4778	211444	6.8368	0.6167	11.6147	1.0860	20	7	13
211442	56.330154	4778	211442	6.2908	0.0002	14.7024	0.3123	21	6	15
213245	58.346382	4778	213245	4.5894	0.0000	10.3232	0.0246	15	5	10
211451	60.550095	4778	211451	3.0416	0.0000	7.2510	0.0000	10	3	7
212861	0.000000	4810						0	0	0
212856	6.787218	4810	212856	185.1082	0.0000			185	185	0
212860	9.386438	4810	212860	203.6808	321.1750			525	525	0
212859	23.831636	4810	212859	203.6693	331.4863			535	535	0
212857	45.177887	4810	212857	222.6145	412.1635			635	635	0
212858	62.953079	4810	212858	347.6007	596.0020			944	944	0
212865	0.000000	4811						0	0	0
212866	17.657108	4811	212866	283.3118	179.3503			463	463	0
212864	38.979847	4811	212864	36.8017	9.2523			46	46	0
212863	53.132889	4811	212863	46.0730	13.5407			60	60	0
212862	55.732109	4811	212862	34.3391	10.7783			45	45	0
212867	62.583431	4811	212867	31.3440	19.8382			51	51	0
210370	0.000000	4714						0	0	0
210364	2.418430	4714	210364	130.9603	32.5581	24.8899	1.3443	190	164	26
210367	6.077366	4714	210367	61.6451	11.2262	22.9470	2.0713	98	73	25
210366	8.682427	4714	210366	54.8686	10.2316	22.0927	1.9587	89	65	24
210368	10.346446	4714	210368	47.2847	8.2577	19.1890	2.0371	77	56	21
210365	12.396565	4714	210365	50.2037	8.7255	17.9397	2.1698	79	59	20
210369	13.954591	4714	210369	49.2549	17.1309	18.4878	5.7267	91	66	24
213237	16.698795	4714	213237	32.8766	2.2658	8.1738	0.3016	44	35	8
213236	18.972878	4714	213236	2.6966	0.0000	1.9104	0.0000	5	3	2
213238	0.000000	4715						0	0	0
213239	2.274082	4715	213239	28.8229	657.6459	14.3038	164.9771	866	686	179
210379	5.018286	4715	210379	179.1362	934.6244	73.8779	323.0601	1511	1114	397
210378	6.576312	4715	210378	690.1195	1218.6912	274.0181	418.0982	2601	1909	692
210377	8.626431	4715	210377	872.8954	1675.4773	311.1940	560.9465	3421	2548	872
210376	10.290450	4715	210376	1250.9132	2073.1843	493.3711	672.6703	4490	3324	1166
210375	12.895512	4715	210375	1620.8713	2380.0510	609.5427	749.9200	5360	4001	1359
210374	16.554447	4715	210374	1652.3296	2590.4831	624.5617	756.8480	5624	4243	1381
210373	18.972878	4715	210373	1708.5467	3014.7660	618.2251	753.5516	6095	4723	1372
212304	0.000000	4798						0	0	0
212302	2.418430	4798	212302	200.6433	48.1432	75.9037	8.7708	333	249	85
212301	6.077366	4798	212301	133.7109	33.1548	76.3779	15.4650	259	167	92
212300	8.682427	4798	212300	128.2698	34.4098	77.8012	17.5791	258	163	95
212315	10.346446	4798	212315	125.0850	34.0485	80.1923	18.9150	258	159	99
212314	12.396565	4798	212314	134.3304	36.4538	93.1952	19.5642	284	171	113
212310	13.954591	4798	212310	136.5601	49.7602	96.5345	24.6461	308	186	121
212308	16.698795	4798	212308	150.7412	53.0180	118.7538	20.2217	343	204	139
212307	18.972878	4798	212307	141.4474	55.2682	126.0134	20.9719	344	197	147
212305	25.600611	4798	212305	144.7899	66.7184	130.3553	26.2668	368	212	157
212309	37.736702	4798	212309	119.1027	50.4805	78.3147	26.2839	274	170	105
212333	41.808151	4798	212333	114.7326	51.0521	78.3760	28.5149	273	166	107
212313	49.092632	4798	212313	118.9199	52.5002	81.3149	29.5995	282	171	111
212303	55.743305	4798	212303	142.1260	60.5871	97.0923	29.0292	329	203	126
212312	57.346233	4798	212312	124.1646	61.5070	74.5659	25.8558	286	186	100
212299	64.649406	4798	212299	120.9810	61.4278	67.2637	23.1087	273	182	90
212311	68.432556	4798	212311	73.5513	39.8535	37.0152	12.7511	163	113	50
212306	69.313248	4798	212306	34.9369	19.9741	18.0871	5.9707	79	55	24
212319	0.000000	4799						0	0	0
212325	0.880689	4799	212325	78.7329	89.5440	47.4901	41.3026	257	168	89
212326	4.663836	4799	212326	203.0692	89.5440	120.4712	41.3026	454	293	162
212330	11.967010	4799	212330	360.8057	357.3898	209.7422	141.5689	1070	718	351
212322	13.569938	4799	212322	434.5889	538.6829	250.0487	201.1970	1425	973	451
212332	20.220612	4799	212332	480.6967	691.2166	280.2029	257.4441	1710	1172	538
212334	27.505093	4799	212334	488.6200	727.0898	283.0081	270.0767	1769	1216	553
212331	31.576542	4799	212331	499.0869	793.1990	293.6801	286.4652	1872	1292	580
212327	43.712631	4799	212327	466.0975	885.1704	289.3888	314.6843	1955	1351	604
212329	50.340366	4799	212329	504.8852	993.3012	345.5903	314.4958	2158	1498	660
212323	52.614449	4799	212323	450.1563	1559.1602	278.4544	453.2339	2741	2009	732
212321	55.358654	4799	212321	588.8226	1831.3485	333.3628	610.8851	3364	2420	944
212320	56.916679	4799	212320	1090.2816	2105.6636	525.7869	703.9941	4426	3196	1230
212318	58.966797	4799	212318	1271.0551	2561.9011	562.5282	846.8148	5242	3833	1409
212317	60.630817	4799	212317	1645.7877	2957.8213	737.9441	956.5556	6298	4604	1694
212316	63.235878	4799	212316	2003.9598	3252.5450	849.7445	1032.4750	7139	5257	1882
212328	66.894814	4799	212328	2031.0887	3461.0221	861.8517	1038.6597	7393	5492	1901
212324	69.313248	4799	212324	2073.7199	3864.6645	848.8463	1030.8353	7818	5938	1880

Phase 1 Route Flows

	Southbound	Northbound
Greeley to DUS CB	4659	4658
SH 7 to DIA	4739	4738
FC to DUS Express	4816	
FC to DUS Mid Day	4820	4821
SH 119 to DUS	4822	
Greeley to DUS EB	4824	4825

ID	MILEPOST	ROUTE_ID	TO_STOP	PW_FLOW	PD_FLOW	OW_FLOW	OD_FLOW	ALLFLOWS	PK_FLOWS	OP_FLOWS
209575	0.000000	4658						0	0	0
209577	8.539355	4658	209577	4.4228	0.1098	17.4170	1.4451	23	5	19
209580	22.337196	4658	209580	5.6783	0.9076	19.1257	3.4653	29	7	23
209581	28.852089	4658	209581	8.5819	3.0043	21.5186	5.6570	39	12	27
209582	37.786770	4658	209582	8.5747	3.6232	21.5118	6.0668	40	12	28
209583	51.922844	4658	209583	11.1961	4.9551	22.9949	6.8942	46	16	30
209576	54.173397	4658	209576	9.4684	4.5573	22.8384	7.5509	44	14	30
209578	56.170876	4658	209578	6.7751	2.7276	17.0893	5.2735	32	10	22
209579	57.395882	4658	209579	4.0448	0.0000	5.2348	0.0000	9	4	5
209591	0.000000	4659						0	0	0
209590	1.225009	4659	209590	1.3579	0.6052	3.2549	2.1709	7	2	5
209589	3.222486	4659	209589	3.1114	0.0883	72.5464	1.6230	77	3	74
209588	4.986763	4659	209588	17.3802	0.8725	99.9207	55.1918	173	18	155
209587	19.122833	4659	209587	19.1614	1.6959	114.8995	118.4662	254	21	233
209586	28.057516	4659	209586	23.5650	1.7147	117.1960	118.4702	261	25	236
209585	34.651291	4659	209585	27.9847	1.7147	119.7847	118.4702	268	30	238
209584	48.561691	4659	209584	21.4533	0.3710	142.2136	142.9588	307	22	285
209592	57.268398	4659	209592	19.7467	0.0000	137.4044	142.0020	299	20	279
210689	0.000000	4738						0	0	0
213240	24.134993	4738	213240	0.0003	0.0008	5.3154	0.0000	5	0	5
213241	0.000000	4739						0	0	0
210691	24.719297	4739	210691	5.7511	0.0000	56.2294	0.0000	62	6	56
213264	0.000000	4816						0	0	0
213248	36.725933	4816	213248	215.8575	416.1912			632	632	0
213250	54.471088	4816	213250	313.3724	516.6871			830	830	0
213266	0.000000	4820						0	0	0
213244	25.714914	4820				137.7766	184.4999	322	0	322
213249	36.809212	4820				192.7292	419.0462	612	0	612
213252	54.554367	4820				249.0897	452.0883	701	0	701
213253	0.000000	4821						0	0	0
213247	17.641336	4821	213247	200.5275	163.2188	182.8575	83.0078	630	364	266
213242	28.728195	4821	213242	41.6884	20.5550	50.6433	11.9107	125	62	63
213267	54.522907	4821	213267	33.2687	16.4393	24.0776	9.5953	83	50	34
213245	0.000000	4822						0	0	0
213254	28.749752	4822	213254	57.3917	593.5885			651	651	0
213256	0.000000	4824						0	0	0
213262	6.499942	4824	213262	167.6242	0.0000			168	168	0
213259	44.800419	4824	213259	196.3506	324.1938			521	521	0
213260	62.545574	4824	213260	269.3694	399.7735			669	669	0
213261	0.000000	4825						0	0	0
213258	17.641336	4825	213258	189.1428	156.9026			346	346	0
213263	55.645298	4825	213263	28.5756	7.9224			36	36	0
213257	62.216518	4825	213257	23.8403	8.8497			33	33	0

Package B BRT Route Flows

ID	MILEPOST	ROUTE_ID	TO_STOP	PW_FLOW	PD_FLOW	OW_FLOW	OD_FLOW	ALLFLOWS	PK_FLOWS	OP_FLOWS
209371	0.000000	4631						0	0	0
209427	2.195383	4631	209427	248.5925	181.3787	111.3077	45.3571	587	430	157
209372	4.208785	4631	209372	334.9955	288.5081	141.5055	47.2916	812	624	189
209379	7.995933	4631	209379	366.3332	351.5675	154.7200	48.7933	921	718	204
209383	10.902749	4631	209383	362.0415	420.7582	152.9391	48.7662	985	783	202
209387	17.993416	4631	209387	373.2120	420.9918	157.4591	46.2760	998	794	204
209393	30.047615	4631	209393	364.7771	545.6097	155.4822	148.7482	1215	910	304
209399	34.630924	4631	209399	404.1885	922.8512	172.8244	211.7126	1712	1327	385
209405	41.046921	4631	209405	461.1031	965.5004	201.4387	270.0118	1898	1427	471
209413	47.065254	4631	209413	498.6860	1060.9586	218.6740	294.2783	2073	1560	513
209415	59.019718	4631	209415	632.3944	1388.6851	271.6551	324.7690	2618	2021	596
209416	59.444126	4632	209373	63.2927	26.5896	38.0658	8.9883		90	47
209411	57.248745	4632	209428	78.8327	32.6026	41.8114	9.8701		111	52
209408	55.235344	4632	209374	88.4700	41.8873	46.8579	12.7693		130	60
209402	51.345963	4632	209381	87.2530	43.4668	45.8010	13.3565		131	59
209396	48.438858	4632	209385	91.7838	45.2310	47.2373	13.8696		137	61
209390	41.348042	4632	209390	82.2641	28.6404	43.5901	10.9533		111	55
209385	29.297829	4632	209396	87.9438	29.9442	46.1425	11.7486		118	58
209381	24.715391	4632	209402	98.6328	29.5125	54.1535	11.5483		128	66
209374	18.282894	4632	209408	202.6629	120.8214	107.9306	42.8125		323	151
209428	11.960876	4632	209411	154.7260	52.6447	75.8124	15.0238		207	91
209373	0.000000	4632						0	0	0
209421	0.000000	4635						0	0	0
209420	6.604112	4635	209420	142.2984	0.0000	87.0329	0.0000	229	142	87
209419	9.185024	4635	209419	187.0514	299.1196	97.8870	94.4240	678	486	192
209389	21.964659	4635	209389	190.2427	318.9100	99.4621	96.8830	705	509	196
209395	34.018856	4635	209395	187.7223	443.0361	98.5699	199.7821	929	631	298
209401	38.602169	4635	209401	226.4291	820.0185	115.4533	262.8423	1425	1046	378
209407	45.018162	4635	209407	285.0149	862.4275	144.3000	321.4317	1613	1147	466
209414	51.036499	4635	209414	322.7447	958.0762	161.6037	345.7678	1788	1281	507
209417	62.990963	4635	209417	460.2269	1287.3467	217.1557	376.1276	2341	1748	593
209418	63.097466	4636	209424	30.6771	21.9277	18.2070	9.4420		53	28
209412	56.429249	4636	209423	35.4203	11.5444	18.7895	5.3024		47	24
209410	53.848335	4636	209422	46.7410	16.1704	23.3761	5.9088		63	29
209404	41.348042	4636	209392	39.0236	10.2021	20.6495	4.8710		49	26
209398	29.297829	4636	209398	44.6575	11.4659	23.1077	5.2133		56	28
209392	24.715391	4636	209404	55.1762	10.9022	30.9869	4.8667		66	36
209422	18.282894	4636	209410	159.2309	103.3950	84.7757	40.4218		263	125
209423	11.960876	4636	209412	117.3749	37.6670	56.5195	11.3081		155	68
209424	0.000000	4636						0	0	0

Package A Commuter Rail Route Flows

209002	0.000000	4630						0	0	0	
209003	2.418430	4630	209003	201.2894	48.2768	72.5742	8.2331	330	250	81	
209004	6.077367	4630	209004	130.9619	31.3541	72.0328	14.4079	249	162	86	
209005	8.682428	4630	209005	125.6368	34.2122	72.3313	16.2759	248	160	89	
209006	10.346447	4630	209006	121.5216	33.1951	71.4856	17.7622	244	155	89	
209007	12.396567	4630	209007	128.0604	35.5744	75.2298	18.5033	257	164	94	
209008	13.954593	4630	209008	130.0595	45.8949	77.0059	23.8329	277	176	101	
209009	16.698797	4630	209009	132.6932	39.2755	76.3628	19.6822	268	172	96	
209010	18.972879	4630	209010	143.2694	41.9673	76.0123	20.7629	282	185	97	
209011	25.644297	4630	209011	129.1453	55.8190	78.8570	27.9731	292	185	107	
209012	37.641289	4630	209012	148.8092	61.9327	82.2200	29.1627	322	211	111	
209013	41.731682	4630	209013	135.5450	58.8011	82.2622	31.8511	308	194	114	
209014	48.891544	4630	209014	136.3805	58.3273	84.4198	31.8630	311	195	116	
209015	55.560585	4630	209015	179.3918	67.8178	108.0465	31.0147	386	247	139	
209016	57.161259	4630	209016	156.4203	65.9448	81.9943	26.4483	331	222	108	
209017	64.427788	4630	209017	156.0458	67.1171	72.5802	23.3403	319	223	96	
209018	68.200455	4630	209018	90.6438	44.3431	42.5064	13.4093	191	135	56	
209019	69.082008	4630	209019	41.8766	19.2179	23.8299	7.5789	93	61	31	
209020	69.082008	4631	209037	2329.9517	4012.0650	894.4235	1100.3307	8337	6342	1995	8667
209021	66.663574	4631	209036	2286.1268	3623.2242	909.1452	1110.8798	7929	5909	2020	8178
209022	63.004642	4631	209035	2259.8892	3409.0633	896.6531	1104.6912	7670	5669	2001	7918
209023	60.399578	4631	209034	1899.4307	3094.3016	786.6870	1029.2508	6810	4994	1816	7054
209024	58.735561	4631	209033	1522.0481	2678.1156	613.3920	815.4751	5629	4200	1429	5886
209025	56.685440	4631	209032	1306.6656	2169.2416	577.6721	726.3990	4780	3476	1304	5057
209026	55.127415	4631	209031	826.6958	1698.1941	394.9908	644.9801	3565	2525	1040	3833
209027	52.383209	4631	209030	745.6714	1698.2404	353.1492	494.1338	3291	2444	847	3573
209028	50.109127	4631	209029	811.2874	1613.7100	456.0213	378.9986	3260	2425	835	3552
209029	43.437710	4631	209028	625.4182	1170.3641	355.1391	379.2257	2530	1796	734	2852
209030	31.440718	4631	209027	693.2532	1036.8466	371.3808	344.4076	2446	1730	716	2754
209031	27.350325	4631	209026	669.3219	976.7461	354.4876	332.4451	2333	1646	687	2644
209032	20.190462	4631	209025	643.3007	892.3205	342.6192	317.1466	2195	1536	660	2581
209033	13.521422	4631	209024	547.7646	698.8508	307.8744	250.5135	1805	1247	558	2136
209034	11.920748	4631	209023	471.7663	476.4348	263.0498	179.0988	1390	948	442	1709
209035	4.654218	4631	209022	257.0254	170.0057	147.9616	68.6298	644	427	217	835
209036	0.881549	4631	209021	107.0395	170.0057	59.9964	68.6298	406	277	129	499
209037	0.000000	4631						0	0	0	

Package A Commuter Bus Route Flows

ID	MILEPOST	ROUTE_ID	TO_STOP	PW_FLOW	PD_FLOW	OW_FLOW	OD_FLOW	ALLFLOW	PK_FLOW	OP_FLOWS		
209293	0.000000	4642						0	0	0		
209297	1.225009	4642	209297	2.4128	18.3921	2.9238	7.1844	31	21	10	66	102
209298	3.222485	4642	209298	82.1209	13.3374	50.6594	5.4702	152	95	56	261	375
209305	4.986761	4642	209305	106.4220	150.9981	73.0424	58.1825	389	257	131	483	618
209309	19.122829	4642	209309	145.6763	282.0430	86.4013	126.0494	640	428	212	723	885
209310	28.057508	4642	209310	150.8112	384.1735	89.0238	150.7534	775	535	240	848	1041
209311	34.651283	4642	209311	154.9474	511.2631	91.0850	150.9087	908	666	242	979	1259
209321	48.561684	4642	209321	146.8634	502.0746	113.4714	191.9228	954	649	305	1012	
209322	57.268391	4642	209322	138.8963	494.2001	108.4671	190.7804	932	633	299	981	
209324	57.395870	4643	209294	23.9593	0.0000	11.3849	0.0000	35	24	11		
209323	56.170864	4643	209299	38.8276	37.8589	19.1956	13.4907	109	77	33		
209314	54.173386	4643	209300	41.5517	20.5434	23.1973	8.5046	94	62	32		
209313	51.922832	4643	209306	40.3288	15.8190	20.7280	6.1888	83	56	27		
209312	37.786766	4643	209312	37.3087	11.3365	19.4646	4.6273	73	49	24		
209306	28.852087	4643	209313	37.3578	10.3425	19.4806	4.2149	71	48	24		
209300	22.337196	4643	209314	34.1007	6.5085	16.4441	1.4154	58	41	18		
209299	8.539355	4643	209323	29.0557	4.1687	14.7644	1.0459	49	33	16		
209294	0.000000	4643						0	0	0		
209295	0.000000	4644						0	0	0		
209301	1.225009	4644	209301	2.5063	5.5993	4.4849	3.8079	16	8	8	36	
209302	3.222485	4644	209302	29.1921	3.0720	28.7856	2.0937	63	32	31	114	
209307	4.986761	4644	209307	33.5042	16.6905	40.3363	9.5125	100	50	50	135	
209315	19.122829	4644	209315	42.6576	31.7349	45.9616	18.9314	139	74	65	162	
209316	28.057508	4644	209316	42.5430	54.6684	45.8499	32.4558	176	97	78	193	
209317	34.651283	4644	209317	45.9779	137.2737	48.3480	32.4732	264	183	81	280	
209326	54.250694	4644	209326	109.0579	137.2737	55.1713	31.3466	333	246	87	337	
209325	53.945503	4645	209296	10.2641	0.0000	9.8866	0.0000	20	10	10		
209320	52.720497	4645	209303	10.3337	17.0978	11.2106	12.6898	51	27	24		
209319	50.723019	4645	209304	8.9756	7.6740	11.5937	7.2158	35	17	19		
209318	48.472466	4645	209308	5.9212	4.7748	7.9563	4.7803	23	11	13		
209308	34.336395	4645	209318	4.2948	2.5335	6.6067	3.2188	17	7	10		
209304	25.401718	4645	209319	4.2996	2.0365	6.6164	2.8064	16	6	9		
209303	18.886827	4645	209320	1.2886	0.0028	3.0077	0.0005	4	1	3		
209296	0.000000	4645						0	0	0		

NFR to CBD Transit Share

		PkgA					
		All zones		Between NFR & CBD zones			
			Transit %	NFR to CBD	CBD to NFR	NFR - CBD	Transit %
HBW	DA			518	13	531	
	SR2			404	5	409	
	SR3+			160	2	162	
	Transit			1,295	2	1,297	54%
Total				2,377	22	2,399	

		PkgB					
		All zones		Between NFR & CBD zones			
			Transit %	NFR to CBD	CBD to NFR	NFR - CBD	Transit %
				398	13	411	
				629	5	634	
				253	2	255	
				1,097	1	1,098	46%
Total				2,377	21	2,398	

		PA-5					
		All zones		Between NFR & CBD zones			
			Transit %	NFR to CBD	CBD to NFR	NFR - CBD	Transit %
				363	13	376	
				595	5	600	
				239	2	241	
				1,181	2	1,183	49%
Total				2,378	22	2,400	

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12/13/2010

Changed Rail Travel Time Conditions between DEIS and FEIS

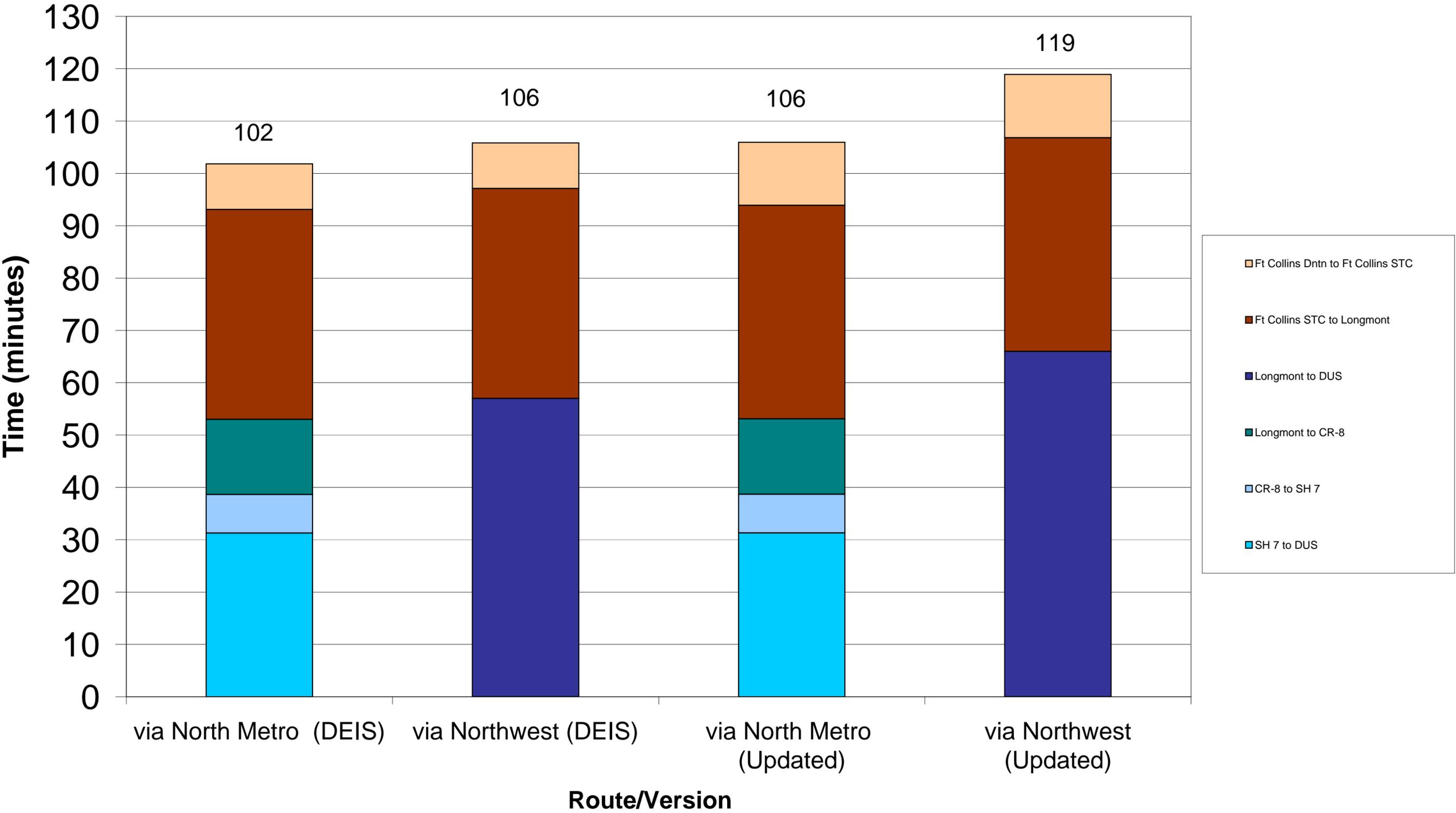
06/02/08

- Rail travel times take into account vehicle maximum speed, vehicle acceleration/deceleration rates, track condition, curvature, grade, posted train speed limit, station spacing, etc.
- North I-25 rail service would be either an extension of the FasTracks North Metro line, or the FasTracks Northwest Rail line.
- During the DEIS analysis, rail travel times between Fort Collins Downtown Transit Center and Denver Union Station were about the same using either corridor:
 - 102 minutes via North Metro
 - 106 minutes via Northwest Rail
- RTD recently revised its estimated Northwest Rail travel times, and the North I-25 team also made some minor revisions. As a result the rail travel time between Fort Collins Downtown Transit Center and Denver Union Station is notably shorter using the North Metro Corridor:
 - 106 minutes via North Metro
 - 119 minutes via Northwest Rail
- This is new information important for the development of the Preferred Alternative, identifying an enhanced need for a transit connection that is more competitive with a shorter travel time.

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Rail Travel Times

Downtown Fort Collins to DUS



Special Event and Weekend Ridership Documentation October 21, 2010

- Used the North I-25 EIS Household Travel Survey (June 2005) developed and administered by the National Research Center Inc. (NRC).
- The survey provided data, as estimated by responders, on their annual average number of round-trips made to special events on weekdays. The same questions were asked for weekends.
- The focus of this effort was to identify those special events that generally occur during non-peak periods such as weekday evenings and weekends.
- While the survey asked detailed questions about trips made for work, school, shopping, and socializing, these trip purposes were not included in this analysis. These trip purposes are implicitly handled within the existing trip purposes of the combined travel model.
- To convert from the annual trips estimated by the survey, annualization factors of 255 and 110 were assumed for weekdays and weekends respectively.
- To convert to the year 2035, the reported trips from the survey were increased by the projected growth in households in the north front range area between 2001 and 2035. (1.91¹). An exception was for the major sporting events, many of which currently experience capacity attendance. A modest growth of 10 percent was assumed for this category of special event trip.
- Not every special event was included in the analysis. Particular attention was placed on events that either attract a large number of people or occur on a regular basis.
- Mode shares were estimated based on several factors as described in the following notes
- The transit mode shares that were assumed are based on RTD's experience running special transit service to events like the Denver Broncos and the Colorado Rockies. RTD is able to provide relatively high service levels to these events. Transit mode shares to special events in the Denver CBD range from 5 percent to 25 percent.

¹ Based on travel model TAZ data.

- These mode shares, however, may not be appropriate for longer distance travel. The consultant team contacted Sound Transit in Seattle, Washington. Sound Transit runs special Sunday service on Sounder commuter rail to the Seattle Seahawks football games and Seattle Mariners Baseball games. They have been experiencing a 5 to 6 percent transit mode share to these professional sporting events.
- Egress or connectivity from proposed transit stops to the location of the special event was considered. Long walk distances between a transit stop to a venue does not encourage transit use, and so lower mode shares were assumed.
- In addition, some events may not have predictable end times due to weather delay or normal game events such as scoring ties. These potential delays may deter some travelers from using transit for special events.
- The assumed transit mode shares were based on a balance between RTD's and Sound Transit's experience, and were estimated "Low" and "High" to produce a range. The Low and High mode shares ranged from 1% to 10%, depending on the trip type.
- It was noted that the total special event trips originating from the NFR should be a relatively small percentage of the total special event trip attractions in Denver. As a reasonableness check, the project team estimated the total trip attractions (doubled to represent trips to the venue and trips leaving the venue) made for major sporting and cultural events in Central Denver. This estimate was then compared to the estimate derived from the survey data. The NFR share of the total trip attractions for sporting events was 5.5 percent on the weekdays and 4.1 percent on the weekends. For cultural events, the NFR share was 5 percent on weekdays and 9 percent on weekends.

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North I-25 EIS

FEIS Forecasting
Special Events Ridership

Weekday
Low Estimate

From	To	Trip Purpose	Survey Annual Trips		Annual-ization	Survey Daily Trips		Pkg Cost	Egress	% Mode Share	Round Trips	2001 to 2035 Factor	Estimated Transit Trips							
			Survey C.I. Range												Alignment					
			Low	High		Low	High						Low	High	BNSF	Central	Low	High	Low	High
North	Denver	Sporting	195,125	235,982	255	765	925	Yes	Yes	6	2	1.1	101	122	101	122	101	122		
North	Boulder	Sporting	28,925	47,370	255	113	186	Yes	No	1	2	2.12	5	8	5	8	5	8		
South	Fort Collins	Sporting	58,862	95,720	255	231	375	No	No	1	2	2.12	10	16	10	16	10	16		
South	Budweiser Center	Sporting	38,217	69,409	255	150	272	No	No	2	2	2.12			13	23	13	23		
North	Downtown	Cultural	204,002	242,391	255	800	951	Yes	Yes	3	2	2.12	102	121	102	121	102	121		
North	Boulder/Longm	Cultural	80,310	106,922	255	315	419	Yes	No	2	2	2.12	27	36			27	36		
Total			742,208	1,004,339		2,911	3,939						244	302	230	290	257	325		

Weekend
Low Estimate

From	To	Trip Purpose	Survey Annual Trips		Annual-ization	Survey Daily Trips		Pkg Cost	Egress	% Mode Share	Round Trips	2001 to 2035 Factor	Estimated Transit Trips							
			Survey C.I. Range												Alignment					
			Low	High		Low	High						Low	High	BNSF	Central	Low	High	Low	High
North	Denver	Sporting	183,969	222,665	110	1,672	2,024	Yes	Yes	6	2	1.1	221	267	221	267	221	267		
North	Boulder	Sporting	41,948	62,991	110	381	573	Yes	No	1	2	2.12	16	24	16	24	16	24		
South	Fort Collins	Sporting	60,849	92,929	110	553	845	No	No	1	2	2.12	23	36	23	36	23	36		
South	Budweiser Center	Sporting	37,456	61,671	110	341	561	No	No	2	2	2.12			29	48	29	48		
North	Downtown	Cultural	232,992	276,892	110	2,118	2,517	Yes	Yes	3	2	2.12	269	320	269	320	269	320		
North	Boulder/Longm	Cultural	173,312	201,438	110	1,576	1,831	Yes	No	2	2	2.12	134	155			134	155		
Total			1,170,743	1,425,310		10,643	12,957						663	803	559	695	692	850		

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North I-25 EIS

FEIS Forecasting
Special Events Ridership

Weekday
High Estimate

From	To	Trip Purpose	Survey Annual Trips		Annual-ization	Survey Daily Trips		Pkg Cost	Egress	% Mode Share	Round Trips	2001 to 2035 Factor	Estimated Transit Trips					
			Low	High		Low	High						BNSF		Central		Combined	
			Survey C.I. Range										Alignment					
			Low	High			Low	High					Low	High	Low	High	Low	High
North	Denver	Sporting	195,125	235,982	255	765	925	Yes	Yes	10	2	1.1	168	204	168	204	168	204
North	Boulder	Sporting	28,925	47,370	255	113	186	Yes	No	1	2	2.12	5	8	5	8	5	8
South	Fort Collins	Sporting	58,862	95,720	255	231	375	No	No	1	2	2.12	10	16	10	16	10	16
South	Budweiser Center	Sporting	38,217	69,409	255	150	272	No	No	2	2	2.12			13	23	13	23
North	Downtown	Cultural	204,002	242,391	255	800	951	Yes	Yes	5	2	2.12	170	202	170	202	170	202
North	Boulder/Longm	Cultural	80,310	106,922	255	315	419	Yes	No	2	2	2.12	27	36			27	36
Total			742,208	1,004,339		2,911	3,939						379	464	365	452	392	488

Weekend
High Estimate

From	To	Trip Purpose	Survey Annual Trips		Annual-ization	Survey Daily Trips		Pkg Cost	Egress	% Mode Share	Round Trips	2001 to 2035 Factor	Estimated Transit Trips					
			Low	High		Low	High						BNSF		Central		Combined	
			Survey C.I. Range										Alignment					
			Low	High			Low	High					Low	High	Low	High	Low	High
North	Denver	Sporting	183,969	222,665	110	1,672	2,024	Yes	Yes	10	2	1.1	368	445	368	445	368	445
North	Boulder	Sporting	41,948	62,991	110	381	573	Yes	No	1	2	2.12	16	24	16	24	16	24
South	Fort Collins	Sporting	60,849	92,929	110	553	845	No	No	1	2	2.12	23	36	23	36	23	36
South	Budweiser Center	Sporting	37,456	61,671	110	341	561	No	No	2	2	2.12			29	48	29	48
North	Downtown	Cultural	232,992	276,892	110	2,118	2,517	Yes	Yes	5	2	2.12	449	534	449	534	449	534
North	Boulder/Longm	Cultural	173,312	201,438	110	1,576	1,831	Yes	No	2	2	2.12	134	155			134	155
Total			1,170,743	1,425,310		10,643	12,957						990	1,194	885	1,087	1,019	1,242

12/13/2010
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2035 Daily

		Regular	Special Event
Weekday	Com Rail Pkg A	4200	350
	Com Bus Pkg A	1600	35
	Pkg A total	5800	385
	BRT Pkg B	6800	340
	Com Rail & EB PA	6100	375
	Com Bus PA	400	20
	Preferred total	6500	395
Weekend	Com Rail Pkg A		925
	Com Bus Pkg A		80
	Pkg A total	2465	1005
	BRT Pkg B	2890	825
	Com Rail & EB PA		975
	Com Bus PA		40
	Preferred total	2762.5	1015

formula source data (model)

Summary	2035 Daily			2035 Annual		
	Regular	Spec Event	Total	spec Event	Total	
Weekday	Pkg A total	5800	385	6185	98,175	1,577,175
	BRT Pkg B	6800	340	7140	86,700	1,820,700
	Preferred total	6500	395	6895	100,725	1,758,225
Weekend	Pkg A total	2465	1005	3470	110,550	381,700
	BRT Pkg B	2890	825	3715	90,750	408,650
	Preferred total	2762.5	1015	3777.5	111,650	415,525
Grand Total	Package A			9,655	208,725	1,958,875
	Package B			10,855	177,450	2,229,350
	Preferred			10,673	212,375	2,173,750

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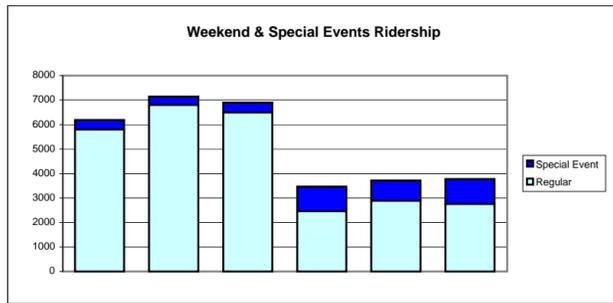
Wknd Share		
Saturday	Sunday	Average
0.5	0.35	0.425

		special event				Answer	
		Corridor	Low	high	avg	point	Range
rail/brt/EB	weekday	bnsf	244	464	354	350	225 - 475
		central	230	452	341	340	225 - 450
		combined	257	488	372.5	375	250 - 500
	weekend	bnsf	663	1194	928.5	925	650 - 1200
		central	559	1087	823	825	550 - 1075
		combined	692	1242	967	975	700 - 1250
commuter bus:	weekday	Pkg A			35	35	
		PA			17.5	20	
	weekend	Pkg A			82.5	80	
		PA			41.25	40	

Assume BRT, EB, and Rail equivalent. Even though rail has premium and is in BNSF corridor, E Assume Commuter bus would handle 5% of trips for package A & PA. Note no CB weekend sen

Annualization factors	
	255
	110

commuter bus calcs	
pkg A total	5800
pkg A CB	1600
assumed share	0.1
PA total	6500
PA CB	400
assumed share	0.05



Sheet2

Reduction in Vehicle Trips

2035	no action_d	pkg a	pkg b	pa_5_b	pa_4 phase 1
total veh trips regional	16221864	16215803	16211693	16210408	16215612
diff from No Action		-6,100	-10,200	-11,500	-6,300

trt trips regional		5797	6828	6508	
trt trips feeder		4203	1690	1660	
trt trips total		10000	8518	8168	
regional linked transit trips	478535	484133	482163	484652	482192
		5598	3628	6117	3657

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NORTH I-25
EIS



information. cooperation. transportation.

Transit Forecast Expert Panel Sensitivity Analysis

**Prepared For:
Federal Highway Administration
Federal Transit Administration
Colorado Department of Transportation**

**Prepared By:
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December 2010

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1.0 SUMMARY

The ridership forecasts for the EIS were estimated using a multimodal travel demand model that was combined from the NFRMPO and DRCOG/RTD regional travel demand models to cover the entire study area of the North I-25 EIS. Prior to the FEIS, the combined model was updated to 2035 conditions. As with any simulation model, there are uncertainties associated with its forecasts and any forecast is considered a “snapshot in time” of the best information available. The output largely depends upon the major input assumptions of future population and employment and travel behavior parameters. The documentation of the combined model is provided in the *Transportation Analysis Technical Report*.

During the final stages of development of the FEIS, DRCOG and RTD incorporated new information into their 2035 regional travel model regarding both socio-economic conditions and travel behavior parameters (the NFRMPO did not update its 2035 model during this timeframe). These updates affected the ridership projections for many of the RTD planned FasTracks corridors. The new projections were for the most part notably higher than RTD’s previous corridor ridership forecasts.

Since the North I-25 EIS combined model’s mode choice module is directly based on the DRCOG/RTD regional model, these model updates would similarly alter to some extent the ridership projections produced by the combined model. Because the FEIS was near completion, it was not possible to implement the changes into the combined model. However, to gauge the magnitude of the effect these specific changes would have on the transit ridership forecasts for Package A, Package B, and the Preferred Alternative, an expert panel was convened. The panel consisted of travel model experts and socio-economic development experts from CDOT, the FHWA, the FTA, DRCOG, NFRMPO, RTD, and the consultant team. After consideration of the specific changes for socio-economics and model parameters by mode and geographic location, and with the acknowledgment of the uncertainties inherent in such an exercise, the expert panel developed a range for potential updated 2035 transit ridership projections. The panel determined that upon implementation of these changes to the forecasting process the Preferred Alternative commuter rail in 2035 might attract a daily ridership of between 3,500 and 4,300 instead of 2,700; the express bus 2035 daily ridership might be between 3,600 and 4,400 instead of 3,400; and the commuter bus 2035 daily ridership might be between 400 and 500 instead of 400. Total 2035 transit ridership for the Preferred Alternative would approach 7,100 to 9,200. Similar effects would be realized for transit ridership in Package A and Package B: Package A commuter rail ridership might range between 5,400 and 6,600; Package A commuter bus ridership might range between 1,300 and 1,500; BRT ridership in Package B might range between 7,100 and 8,700.

Further information on the expert panel process and conclusions is provided in this paper.

2.0 BACKGROUND

As part of normal operations, DRCOG and RTD continuously update and improve the Denver Regional Travel Demand Model to reflect the latest information available. During 2009 and 2010, this process led to the incorporation of three major updates to the model, listed below.

- ▶ Updated forecast year to 2035;
 - This is a standard update done periodically to maintain an appropriate horizon year for planning purposes and reflects general growth in population and employment in the region.
- ▶ Improvements to the land use model to better reflect community plans;
 - DRCOG works closely with the municipalities in the region to determine appropriate locations and densities of development.
 - The updated land use model used a smaller urban growth boundary, which resulted in a more concentrated future development pattern.
 - The update also included many municipalities efforts to promote urban growth near existing urban centers and planned transit improvements.
- ▶ Updated trip generation, trip distribution, and mode choice parameters;
 - RTD conducted a transit on-board survey in 2008 to better understand riders' trip origins, destinations, and purpose. In general, the survey resulted in the increase of overall system ridership.
 - Other updates to the model parameters were made, including a re-calibration of existing VMT and trip generation factors.

Taken in concert, these three changes to the inputs of the model produce substantially different transit ridership results for much of the region. Some of RTD's planned FasTracks corridors are now projected to attract a far greater number of riders, and others are projected to attract slightly fewer, as shown in Table 1.

Table 1. RTD Ridership Results

Corridor	Previously Reported Ridership	New 2035 Ridership
North Metro	13,100	24,100
Northwest Rail	8,400	17,400
I-225	17,900	34,200
SE Extension	16,200	14,800
SW Extension	4,300	5,700

Table 1. RTD Ridership Results

Corridor	Previously Reported Ridership	New 2035 Ridership
Central Extension	4,900	5,800
US-36 BRT	10,200	14,600

As shown in Table 1, the corridors that are most germane to the North I-25 FEIS process – North Metro, Northwest Rail and US-36 BRT – were substantially affected by the model updates.

To better determine the effects of each individual update to the model, RTD undertook a sensitivity analysis in which each change was tested against a baseline. The results of these tests for the relevant corridors are summarized in Table 2.

Table 2. RTD Test Results

Corridor	Previously Reported 2030 Ridership	Increase due to Land Use Changes	Increase due to Model Code Changes	Increase due to Model Year Change	Final Boardings
North Metro	13,100	39%	19%	16%	24,100
Northwest Rail	8,400	28%	36%	29%	17,400
Region-wide Rail	n/a	9%	18%	16%	n/a
Region-wide Regional Bus	n/a	8%	11%	1%	n/a

n/a: not available

3.0 APPLICATION TO THE NORTH I-25 FEIS

The DRCOG/RTD model updates would similarly alter to some extent the ridership projections produced by the North I-25 EIS combined model. However, because the FEIS was near completion, it was not possible to implement the changes into the combined model. For this reason, to gauge the magnitude of the effect these specific changes would have on the transit ridership forecasts for Package A, Package B, and the Preferred Alternative, an expert panel was convened. The panel consisted of travel model experts and socio-economic development experts from CDOT, the FHWA, the FTA, DRCOG, NFRMPO, RTD, and the consultant team. The goal of the panel was to identify a range of likely corridor ridership numbers for the build alternatives based on the recent changes made by DRCOG and RTD to the Denver regional travel model.

The panel held two successive meetings. At the first meeting, the problem statement was presented, the panel requested some further supporting information from RTD, DRCOG, and the NFRMPO, and a general method for developing the estimates was discussed. At the second meeting, the panel reviewed the available information and applied it to develop a range for potential updated 2035 ridership projections.

To produce this range the panel created a set of factors to apply to the combined model's 2035 results at each proposed transit station in Package A, Package B, and the Preferred Alternative. The factors take into account the effect on ridership due to both socio-economics and model parameters by mode and geographic location, based on RTD's sensitivity test runs. Then, the effects of each change by station were aggregated, and a new corridor ridership total was calculated. Finally, a bracket of +/- 10 percent was applied to produce the range of potential 2035 ridership for each corridor. The factors that were developed by the panel are described below.

For Commuter Rail stations in the NFR region:

- 1) An increase of 15% was assumed due to potential land use densification near stations - similar to the increase seen in regional rail trips in the DRCOG region.
- 2) An increase of 25% was assumed due to the changes to the model code - an average of the changes seen in DRCOG regional rail trips, North Metro rail trips, and Northwest rail trips.

For Commuter Rail stations in the DRCOG region:

- 1) An increase of 35% was assumed due to potential land use densification near stations - an average of the increases seen in North Metro and Northwest rail trips.
- 2) An increase of 25% was assumed due to the changes to the model code - an average of the changes seen in DRCOG regional rail trips, North Metro rail trips, and Northwest rail trips.

For Bus stations in the NFR region:

- 1) An increase of 5% was assumed due to potential land use densification near stations - this is lower than the assumed difference near Commuter Rail because bus stations are generally less effective at spurring development and because of the effects seen in the DRCOG region.
- 2) An increase of 10% was assumed due to the changes in the model code based on the results from the DRCOG region.

For Bus stations in the DRCOG region:

- 1) An increase of 8% was assumed due to potential land use densification near stations - this is higher than the assumed difference in the NFR region because DRCOG has re-allocated land use in the urban growth boundary and the NFRMPO does not currently have similar plans. It also matches the change for Regional Bus in the DRCOG Region.
- 2) An increase of 10% was assumed due to the changes in the model code based on the results from the DRCOG region.

All Stations:

- 1) No increases are assumed due to the change in horizon year because the North I-25 combined model had already been updated to 2035.

Transit Forecast Expert Panel Sensitivity Analysis

In this way the expert panel estimated ridership for the North I-25 transit corridors had the DRCOG/RTD model updates been implemented in the combined model. The expert panel reiterated that all forecasts have uncertainties due to the copious set of assumptions in the travel demand modeling process. The expert panel’s method to develop the range of corridor ridership further extends the set of assumptions used for forecasting.

The results are shown in Table 3 for Package A, Table 4 for Package B and Table 5 for the Preferred Alternative.

Table 3. Package A Results

Station	FEIS Boardings	Increase due to Land Use Changes	Increase due to Model Code	Increase due to Model Year	Resulting Boardings	Final Boardings
Fort Collins – North Transit Center	500	15%	20%	0%	675	
Fort Collins – CSU	350	15%	20%	0%	470	
Fort Collins – South Transit Center	850	15%	20%	0%	1,150	
Loveland – 29th Street	450	15%	20%	0%	605	
Loveland – 4th Street Downtown	550	15%	20%	0%	740	
Berthoud – SH 56	200	15%	20%	0%	270	
Longmont – SH 66	200	35%	25%	0%	320	
Longmont – Sugar Mill	350	35%	25%	0%	560	
Erie – WCR 8	750	35%	25%	0%	1,200	
Total	4,200				6,000	5,400 to 6,600
Commuter Bus						
Greeley North	60	5%	9%	0%	70	
Greeley Downtown	270	5%	9%	0%	310	
Greeley South	300	5%	9%	0%	340	
Evans	270	5%	9%	0%	310	
Platteville	60	5%	9%	0%	70	
Fort Lupton	75	5%	9%	0%	85	
Brighton	225	5%	9%	0%	255	
Commerce City	30	5%	9%	0%	35	
Downtown Denver	945	5%	9%	0%	1,075	
Commuter Bus Total	1,200				1,400	1,300 to 1,500

Transit Forecast Expert Panel Sensitivity Analysis

Table 4. Package B Results

Station	FEIS Boardings	Increase due to Land Use Changes	Increase due to Model Code	Increase due to Model Year	Resulting Boardings	Final Boardings
Fort Collins – South Transit Center	900	5%	10%	0%	1,025	
Fort Collins – Harmony and Timberline	300	5%	10%	0%	340	
Fort Collins – I-25 and Harmony	200	5%	10%	0%	230	
I-25 and SH 392	100	5%	10%	0%	115	
I-25 and Crossroads	200	5%	10%	0%	230	
Greeley 8th and 8th	300	5%	10%	0%	340	
Greeley US 34 and 83rd Avenue	500	5%	10%	0%	570	
Greeley US 34 and SH 257	100	5%	10%	0%	115	
I-25 and SH 56/60	600	5%	10%	0%	685	
I-25 and SH 119	1,100	8%	10%	0%	1,285	
I-25 and SH 52	500	8%	10%	0%	585	
I-25 and SH 7	1,500	8%	10%	0%	1,755	
Wagon Road	1,600	8%	10%	0%	1,870	
Downtown Denver	5,400	8%	10%	0%	6,320	
Denver International Airport	300	8%	10%	0%	350	
Total	6,800				7,900	7,100 to 8,700

Table 5. Preferred Alternative Results

Station	FEIS Boardings	Increase due to Land Use Changes	Increase due to Model Code	Increase due to Model Year	Resulting Boardings	Final Boardings
Commuter Rail						
Fort Collins – North Transit Center	150	15%	20%	0%	200	
Fort Collins – CSU	150	15%	20%	0%	200	
Fort Collins – South Transit Center	900	15%	20%	0%	1,215	
Loveland – 29th Street	400	15%	20%	0%	540	
Loveland – 4th Street Downtown	400	15%	20%	0%	540	
Berthoud – SH 56	150	15%	20%	0%	200	
Longmont – SH 66	200	35%	25%	0%	320	
Longmont – Sugar Mill	500	35%	25%	0%	800	
Erie – WCR 8	300	35%	25%	0%	480	

Table 5. Preferred Alternative Results

Station	FEIS Boardings	Increase due to Land Use Changes	Increase due to Model Code	Increase due to Model Year	Resulting Boardings	Final Boardings
Commuter Rail						
Commuter Rail Total	2,700				3,900	3,500 to 4,300
Express Bus						
Fort Collins – South Transit Center	50	15%	10%	0%	60	
Fort Collins – Harmony and Timberline	150	5%	10%	0%	170	
Fort Collins – I-25 and Harmony	75	5%	10%	0%	85	
I-25 and SH 392	50	5%	10%	0%	55	
I-25 and Crossroads	225	5%	10%	0%	265	
Greeley 8th and 8th	350	5%	10%	0%	400	
Greeley US 34 and 83rd Avenue	75	5%	10%	0%	85	
Greeley US 34 and SH 257	200	5%	10%	0%	230	
I-25 and SH 56/60	525	8%	10%	0%	615	
I-25 and SH 119	25	8%	10%	0%	30	
I-25 and SH 52	375	35%	10%	0%	540	
I-25 and SH 7	1,850	8%	10%	0%	2,165	
Downtown Denver	2,750	8%	10%	0%	3,220	
Denver International Airport	100	8%	10%	0%	115	
Express Bus Total	3,400				4,000	3,600 to 4,400
Commuter Bus						
Greeley North	20	5%	9%	0%	25	
Greeley Downtown	90	5%	9%	0%	105	
Greeley South	100	5%	9%	0%	115	
Evans	90	5%	9%	0%	105	
Platteville	20	5%	9%	0%	25	
Fort Lupton	25	5%	9%	0%	30	
Brighton	75	5%	9%	0%	85	
Commerce City	10	5%	9%	0%	10	
Downtown Denver	315	5%	9%	0%	360	
Commuter Bus Total	400				450	400 to 500
Preferred Alternative Total	6,100				7,900	7,500 to 8,800

4.0 IMPACT TO THE FINDINGS OF THE FEIS

The transit ridership presented in the FEIS is the result of travel demand modeling done with the best available information at the time of the FEIS analysis. The results of the North I-25 combined travel demand model were used as the basis to determine impacts to many resources and to influence the design of the Preferred Alternative as appropriate. The results of the expert panel's sensitivity analysis are useful to illustrate that while increased ridership might be expected, the projected overall level of transit ridership would not affect the overall findings of the FEIS.

As the project moves through the phased Record-of-Decision process, new information will continue to become available regarding travel demand modeling (as well as many other aspects). At the point of time the proposed transit improvements move further into the planning and design process, a review of the potential impacts to the following elements of the design with regard to updated travel demand information should be considered:

- ▶ Transit operations (service frequencies)
- ▶ Fleet sizes
- ▶ Transit parking
- ▶ Maintenance facilities
- ▶ Air Quality – if service frequencies were to change, an analysis of the effect on air quality would be required

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Induced Demand Near New Transit Facilities Summary of Research

1- New development that occurs near stations due to the building of a rail line

Research shows that new development occurs near stations after opening of the transit line. Some example studies that have shown this are:

- ◆ *Land Development at Selected Hudson-Bergen Light Rail (HBLR) Stations:* Since opening of the 20.6-mile long, 23-station route in New Jersey area in 2000; the land development has been intensifying along the line. Acres and acres of old, abandoned rail yards, piers and industrial sites along the route have been transformed into compact residential, office and retail developments in pedestrian, transit-friendly environments.
- ◆ *Land Use around Suburban Transit Stations:* Both BART and METRO; two modern heavy rail, rapid transit networks; impact land use around suburban stations.
- ◆ *Evidence of Land Use Impacts of Rapid Transit Systems:* Rapid transit can have substantial growth-focusing impact when other supporting factors present.
- ◆ *PATCO Transit-Oriented Development Master Plans Study:* All of PATCO's stations have potential for new development.

The type of new development that occurs near transit is *compact, mixed use development within walking distance of public transportation*; i.e. Transit Oriented Development (TOD). Several jurisdictions are encouraging TODs nationwide. Around half of the 90 U.S. transit properties surveyed in TCRP H-27 stated that their regions have a vision, policy or plan in place that embraces TOD⁸. Some example programs are:

- ◆ "Strategic Plan for Transit Oriented Development" by Regional Transportation District of Denver
- ◆ "Transit Oriented Development Program" by Santa Clara Valley Transportation Authority
- ◆ "Transit Village Initiative" by New Jersey DOT and New Jersey Transit
- ◆ "BART Transit Oriented Development Program" by San Francisco Bay Area Rapid Transit District
- ◆ "Central Maryland TOD Strategy: A Regional Action Plan for Transit Centered Communities"

The research shows that the amount of new development would vary. Below is some quantitative information on the amount of new development:

- ◆ 10,000+ new residential units were built at the five station areas of HBLR line since opening in year 2000¹
- ◆ A master plan near the HBLR's Bayonne station indicates that there is a potential for 6,700 residential units, 655,000 square feet of cultural space, 1.5 million square feet of commercial space, 260,000 square feet of retail and 750 rooms of hotel capacity¹
- ◆ Arlington County's two major rail corridors have experienced a tremendous increase in building activity since Metrorail's 1978 opening: 24.4 million square feet of office space, 3.8 million square feet of retail space, some 24,000 mixed- income dwelling units, and over 6,300 hotel rooms were built⁹

It is noted, however, that the type and intensity of the impacts of rapid transit corridors can be expected to vary from one region to another and within regions depending on a variety of site and situational characteristics ².

2- Increased rail ridership due to the new development that occurs near stations

There are numerous nationwide examples of the positive impact that TOD has on transit ridership. Some example studies that show ridership impacts are as follows:

- ◆ Land Development at Selected Hudson-Bergen Light Rail (HBLR) Stations: Ridership has been increasing steadily both weekday and weekend along the line.
- ◆ *TCRP Report 102*: Residences, offices and retail shops that are within walking distance to transit stations have extensive positive impacts on ridership. Building higher density housing with a more walkable scale bumps up transit's market share even more. Certain conditions must exist for transit ridership to increase. The "3D's: Density, Diversity, and Design" are significant, and in the San Francisco Bay Area, a study of 129 rail stations showed a strong positive link between residential density, numbers of retail and service jobs (land use diversity), and city block patterns (urban design) with transit use.
- ◆ A series of California studies conclude that ridership is (on average) around five times higher among people who live or work near rail stations compared to surrounding areas ⁹
- ◆ Among with commuters with no previous transit access, transit use can increase up to 50% ¹⁰
- ◆ Transit mode share can vary from 5% to nearly 50% for TOD commuters. For non-work trips, mode shares are lower than commute trips (2% to 20%) ¹⁰
- ◆ *PATCO Transit-Oriented Development Master Plans Study*: The mixed-use nature of TODs is also conducive to off-peak transit usage as more restaurant, retail and entertainment options are developed around stations.

Below are some quantitative information on the amount of additional ridership:

- ◆ In Arlington County, Virginia, every two units of housing added within a station area resulted in approximately one new Metrorail trip per day ⁹
- ◆ In Arlington County, Virginia, one additional daily Metrorail trip was added for every 2,000 square feet of commercial development ⁹
- ◆ A 1983 study of nine transit joint development projects in the U.S. found that every 1,000 square feet of new commercial floor space generated an additional six daily trips ⁹

It should, however, be noted that there is no rule of thumb or single mode share number that can be easily applied to a hypothetical new TOD along a new rail or bus system, due to widely varying local travel conditions and employment distributions ¹⁰. Research also shows that system extensiveness is positively correlated with transit ridership ¹⁰.

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