

Generation Interconnection

Network Impacts (Primary Point of Interconnection)

The Queue Project #Y2-010 was studied as a 100.0MW (Capacity 13.0MW) injection as a tap of the Meadow Lake-Olive 345 kV line in the AEP area. Project #Y2-010 was evaluated for compliance with reliability criteria for summer peak conditions in 2016. Potential network impacts were as follows:

Generator Deliverability

(Single or N-1 contingencies for the Capacity portion only of the interconnection)

No problems were identified.

Multiple Facility Contingency

(Double Circuit Tower Line contingencies only for the full energy output. Stuck breaker and bus fault contingencies will be performed for the Impact Study)

No problems were identified.

Light Load Analysis

Light Load Studies are to be conducted during later study phases (applicable to wind, coal, nuclear, and pumped storage projects).

Short Circuit

No problems were identified.

Contribution to Previously Identified Overloads

(This project contributes to the following contingency overloads, i.e. "Network Impacts", identified for earlier generation or transmission interconnection projects in the PJM Queue)

1. The 05OLIVE 345/138 kV transformer (from bus 243229 to bus 243353 ckt 2) loads from 103.48% to 105.02% (**DC power flow**) of its emergency rating (818 MVA) for the line fault with failed breaker contingency outage of CONTINGENCY DESCRIPTION ('2980_C2'). This project contributes approximately 12.61 MW to the thermal violation.

CONTINGENCY '2980_C2'

OPEN BRANCH FROM BUS 243206 TO BUS 299951 CKT 1 / 243206

05DUMONT 765 242928 05SOREN 765 1

OPEN BRANCH FROM BUS 243206 TO BUS 243219 CKT 2 / 243206

05DUMONT 765 243219 05DUMONT 345 2

OPEN BRANCH FROM BUS 243219 TO BUS 909180 CKT 2 / 243219

05DUMONT 345 243229 05OLIVE 345 2

END

Please refer to Appendix 1 for a table containing the generators having contribution to this flowgate.

2. The 05OLIVE 345/138 kV transformer (from bus 243229 to bus 243353 ckt 2) loads from 103.63% to 105.16% (**DC power flow**) of its emergency rating (818 MVA) for the line fault with failed breaker contingency outage of CONTINGENCY DESCRIPTION ('2975_C2_X2-052'). This project contributes approximately 12.49 MW to the thermal violation.

CONTINGENCY '2975_C2_X2-052'

OPEN BRANCH FROM BUS 243206 TO BUS 243219 CKT 2	/ 243206
05DUMONT 765 243219 05DUMONT 345 2	
OPEN BRANCH FROM BUS 243219 TO BUS 909180 CKT 2	/ 243219
05DUMONT 345 243229 05OLIVE 345 2	
OPEN BRANCH FROM BUS 243219 TO BUS 243234 CKT 2	/ 243219
05DUMONT 345 243234 05TWIN B 345 2	
END	

Please refer to Appendix 2 for a table containing the generators having contribution to this flowgate.

3. The 05OLIVE 345/138 kV transformer (from bus 243229 to bus 243353 ckt 2) loads from 103.63% to 105.16% (**DC power flow**) of its emergency rating (818 MVA) for the line fault with failed breaker contingency outage of CONTINGENCY DESCRIPTION ('2977_C2_X2-052'). This project contributes approximately 12.49 MW to the thermal violation.

CONTINGENCY '2977_C2_X2-052'

OPEN BRANCH FROM BUS 243206 TO BUS 243219 CKT 2	/ 243206
05DUMONT 765 243219 05DUMONT 345 2	
OPEN BRANCH FROM BUS 243219 TO BUS 909180 CKT 2	/ 243219
05DUMONT 345 243229 05OLIVE 345 2	
OPEN BRANCH FROM BUS 243219 TO BUS 243234 CKT 1	/ 243219
05DUMONT 345 243234 05TWIN B 345 1	
END	

Please refer to Appendix 3 for a table containing the generators having contribution to this flowgate.

4. The 05OLIVE 345/138 kV transformer (from bus 243229 to bus 243353 ckt 2) loads from 106.05% to 107.57% (**DC power flow**) of its emergency rating (818 MVA) for the line fault with failed breaker contingency outage of CONTINGENCY DESCRIPTION ('2979_C2_X1-020_X2-052'). This project contributes approximately 12.45 MW to the thermal violation.

CONTINGENCY '2979_C2_X1-020_X2-052'

OPEN BRANCH FROM BUS 243206 TO BUS 907020 CKT 1	/ 243206
05DUMONT 765 243207 05GRNTWN 765 1	

OPEN BRANCH FROM BUS 243206 TO BUS 243219 CKT 2 / 243206
 05DUMONT 765 243219 05DUMONT 345 2
 OPEN BRANCH FROM BUS 243219 TO BUS 909180 CKT 2 / 243219
 05DUMONT 345 243229 05OLIVE 345 2
 END

Please refer to Appendix 4 for a table containing the generators having contribution to this flowgate.

5. The 05OLIVE-05COOK 345 kV line (from bus 243229 to bus 243215 ckt 1) loads from 107.8% to 109.92% (**DC power flow**) of its emergency rating (1409 MVA) for the tower line contingency outage of CONTINGENCY DESCRIPTION ('446_A'). This project contributes approximately 30.5 MW to the thermal violation.

CONTINGENCY '446_A'
 OPEN BRANCH FROM BUS 243219 TO BUS 909180 CKT 2 / 243219
 05DUMONT 345 909180 X2-052 TAP 345 2
 OPEN BRANCH FROM BUS 243219 TO BUS 243232 CKT 1 / 243219
 05DUMONT 345 243232 05SORENS 345 1
 END

Please refer to Appendix 5 for a table containing the generators having contribution to this flowgate.

6. The 05OLIVE-05COOK 345 kV line (from bus 243229 to bus 243215 ckt 1) loads from 108.92% to 111.04% (**DC power flow**) of its emergency rating (1409 MVA) for the line fault with failed breaker contingency outage of CONTINGENCY DESCRIPTION ('2975_C2_X2-052'). This project contributes approximately 30.46 MW to the thermal violation.

CONTINGENCY '2975_C2_X2-052'
 OPEN BRANCH FROM BUS 243206 TO BUS 243219 CKT 2 / 243206
 05DUMONT 765 243219 05DUMONT 345 2
 OPEN BRANCH FROM BUS 243219 TO BUS 909180 CKT 2 / 243219
 05DUMONT 345 243229 05OLIVE 345 2
 OPEN BRANCH FROM BUS 243219 TO BUS 243234 CKT 2 / 243219
 05DUMONT 345 243234 05TWIN B 345 2
 END

Please refer to Appendix 6 for a table containing the generators having contribution to this flowgate.

7. The 05OLIVE-05COOK 345 kV line (from bus 243229 to bus 243215 ckt 1) loads from 108.92% to 111.04% (**DC power flow**) of its emergency rating (1409 MVA) for the line fault with failed breaker contingency outage of CONTINGENCY DESCRIPTION ('2977_C2_X2-052'). This project contributes approximately 30.46 MW to the thermal violation.

CONTINGENCY '2977_C2_X2-052'

OPEN BRANCH FROM BUS 243206 TO BUS 243219 CKT 2	/ 243206
05DUMONT 765 243219 05DUMONT 345 2	
OPEN BRANCH FROM BUS 243219 TO BUS 909180 CKT 2	/ 243219
05DUMONT 345 243229 05OLIVE 345 2	
OPEN BRANCH FROM BUS 243219 TO BUS 243234 CKT 1	/ 243219
05DUMONT 345 243234 05TWIN B 345 1	
END	

Please refer to Appendix 7 for a table containing the generators having contribution to this flowgate.

8. The 05OLIVE-05COOK 345 kV line (from bus 243229 to bus 243215 ckt 1) loads from 109.79% to 111.89% (**DC power flow**) of its emergency rating (1409 MVA) for the line fault with failed breaker contingency outage of CONTINGENCY DESCRIPTION ('2979_C2_X1-020_X2-052'). This project contributes approximately 30.14 MW to the thermal violation.

CONTINGENCY '2979_C2_X1-020_X2-052'

OPEN BRANCH FROM BUS 243206 TO BUS 907020 CKT 1	/ 243206
05DUMONT 765 243207 05GRNTWN 765 1	
OPEN BRANCH FROM BUS 243206 TO BUS 243219 CKT 2	/ 243206
05DUMONT 765 243219 05DUMONT 345 2	
OPEN BRANCH FROM BUS 243219 TO BUS 909180 CKT 2	/ 243219
05DUMONT 345 243229 05OLIVE 345 2	
END	

Please refer to Appendix 8 for a table containing the generators having contribution to this flowgate.

9. The 05OLIVE-05COOK 345 kV line (from bus 243229 to bus 243215 ckt 1) loads from 110.24% to 111.55% (**DC power flow**) of its emergency rating (1409 MVA) for the line fault with failed breaker contingency outage of CONTINGENCY DESCRIPTION ('1750_C2'). This project contributes approximately 18.95 MW to the thermal violation.

CONTINGENCY '1750_C2'

OPEN BRANCH FROM BUS 243206 TO BUS 270644 CKT 1	/ 243206
05DUMONT 765 270644 WILTO; 765 1	
OPEN BRANCH FROM BUS 243206 TO BUS 243219 CKT 1	/ 243206
05DUMONT 765 243219 05DUMONT 345 1	
END	

Please refer to Appendix 9 for a table containing the generators having contribution to this flowgate.

10. The 05OLIVE-X2-052 TAP 345 kV line (from bus 243229 to bus 909180 ckt 2) loads from 118.83% to 120.79% (**DC power flow**) of its emergency rating (1409 MVA) for the line fault with failed breaker contingency outage of CONTINGENCY DESCRIPTION ('112-65-BT3-4__'). This project contributes approximately 28.2 MW to the thermal violation.

```
CONTINGENCY '112-65-BT3-4__' / CONTINGENCY # 375
  TRIP BRANCH FROM BUS 270644 TO BUS 243206 CKT 1 / WILTO; 765
05DUMONT 765
  TRIP BRANCH FROM BUS 275232 TO BUS 270644 CKT 1 / WILTO;3M 345
WILTO; 765
  TRIP BRANCH FROM BUS 275232 TO BUS 270926 CKT 1 / WILTO;3M 345
WILTO; B 345
  TRIP BRANCH FROM BUS 275232 TO BUS 275332 CKT 1 / WILTO;3M 345
WILTO;3C 33
END
```

Please refer to Appendix 10 for a table containing the generators having contribution to this flowgate.

11. The 05OLIVE-X2-052 TAP 345 kV line (from bus 243229 to bus 909180 ckt 2) loads from 118.84% to 120.79% (**DC power flow**) of its emergency rating (1409 MVA) for the line fault with failed breaker contingency outage of CONTINGENCY DESCRIPTION ('112-65-BT4-5__'). This project contributes approximately 28.2 MW to the thermal violation.

```
CONTINGENCY '112-65-BT4-5__' / CONTINGENCY # 376
  TRIP BRANCH FROM BUS 270644 TO BUS 243206 CKT 1 / WILTO; 765
05DUMONT 765
  TRIP BRANCH FROM BUS 275233 TO BUS 270644 CKT 1 / WILTO;4M 345
WILTO; 765
  TRIP BRANCH FROM BUS 275233 TO BUS 270927 CKT 1 / WILTO;4M 345
WILTO; R 345
  TRIP BRANCH FROM BUS 275233 TO BUS 275333 CKT 1 / WILTO;4M 345
WILTO;4C 33
END
```

Please refer to Appendix 11 for a table containing the generators having contribution to this flowgate.

12. The X2-052 TAP-05DUMONT 345 kV line (from bus 909180 to bus 243219 ckt 2) loads from 131.19% to 133.88% (**DC power flow**) of its emergency rating (1409 MVA) for the tower line contingency outage of CONTINGENCY DESCRIPTION ('438'). This project contributes approximately 38.65 MW to the thermal violation.

CONTINGENCY '438'

OPEN BRANCH FROM BUS 243215 TO BUS 243223 CKT 1 / 243215 05COOK
 345 243223 05JACKSR 345 1
 OPEN BRANCH FROM BUS 243215 TO BUS 243229 CKT 1 / 243215 05COOK
 345 243229 05OLIVE 345 1
 END

Please refer to Appendix 12 for a table containing the generators having contribution to this flowgate.

13. The 05OLIVE-X2-052 TAP 345 kV line (from bus 243229 to bus 909180 ckt 2) loads from 138.75% to 141.92% (**DC power flow**) of its emergency rating (1409 MVA) for the line fault with failed breaker contingency outage of CONTINGENCY DESCRIPTION ('2877_C2_05OLIVE 345-B1'). This project contributes approximately 45.28 MW to the thermal violation.

CONTINGENCY '2877_C2_05OLIVE 345-B1'
 OPEN BRANCH FROM BUS 243215 TO BUS 243229 CKT 1 / 243215 05COOK
 345 243229 05OLIVE 345 1
 OPEN BRANCH FROM BUS 243229 TO BUS 243353 CKT 2 / 243229 05OLIVE
 345 243353 05OLIVE 138 2
 OPEN BRANCH FROM BUS 243327 TO BUS 243353 CKT 1 / 243327
 05LAPORT 138 243353 05OLIVE 138 1
 END

Please refer to Appendix 13 for a table containing the generators having contribution to this flowgate.

14. The 05REYNOL-05OLIVE 345 kV line (from bus 243230 to bus 243229 ckt 1) loads from 147.4% to 150.45% (**DC power flow**) of its emergency rating (972 MVA) for the line fault with failed breaker contingency outage of CONTINGENCY DESCRIPTION ('4690_C2_05OLIVE 345-D'). This project contributes approximately 29.68 MW to the thermal violation.

CONTINGENCY '4690_C2_05OLIVE 345-D'
 OPEN BRANCH FROM BUS 914010 TO BUS 243229 CKT 1 / 914010 Y2-010
 TAP 345 243229 05OLIVE 345 1
 OPEN BRANCH FROM BUS 243229 TO BUS 274804 CKT 1 / 243229 05OLIVE
 345 274804 UPNOR;RP 345 1
 END

Please refer to Appendix 14 for a table containing the generators having contribution to this flowgate.

15. The 05OLIVE-05COOK 345 kV line (from bus 243229 to bus 243215 ckt 1) loads from 143.73% to 146.33% (**DC power flow**) of its emergency rating (1409 MVA) for the line fault with failed breaker contingency outage of CONTINGENCY DESCRIPTION

('2879_C2_05OLIVE 345-E1_X2-052'). This project contributes approximately 37.35 MW to the thermal violation.

```
CONTINGENCY '2879_C2_05OLIVE 345-E1_X2-052'  
  OPEN BRANCH FROM BUS 243219 TO BUS 909180 CKT 2          / 243219  
05DUMONT 345 243229 05OLIVE 345 2  
  OPEN BRANCH FROM BUS 243229 TO BUS 243353 CKT 2          / 243229 05OLIVE  
345 243353 05OLIVE 138 2  
  OPEN BRANCH FROM BUS 243327 TO BUS 243353 CKT 1          / 243327  
05LAPORT 138 243353 05OLIVE 138 1  
END
```

Please refer to Appendix 15 for a table containing the generators having contribution to this flowgate.

16. The X2-052 TAP-05DUMONT 345 kV line (from bus 909180 to bus 243219 ckt 2) loads from 170.66% to 173.82% (**DC power flow**) of its emergency rating (1409 MVA) for the line fault with failed breaker contingency outage of CONTINGENCY DESCRIPTION ('2877_C2_05OLIVE 345-B1'). This project contributes approximately 45.28 MW to the thermal violation.

```
CONTINGENCY '2877_C2_05OLIVE 345-B1'  
  OPEN BRANCH FROM BUS 243215 TO BUS 243229 CKT 1          / 243215 05COOK  
345 243229 05OLIVE 345 1  
  OPEN BRANCH FROM BUS 243229 TO BUS 243353 CKT 2          / 243229 05OLIVE  
345 243353 05OLIVE 138 2  
  OPEN BRANCH FROM BUS 243327 TO BUS 243353 CKT 1          / 243327  
05LAPORT 138 243353 05OLIVE 138 1  
END
```

Please refer to Appendix 16 for a table containing the generators having contribution to this flowgate.

New System Reinforcements

(Upgrades required to mitigate reliability criteria violations, i.e. “Network Impacts”, initially caused by the addition of this project generation)

None

Contribution to Previously Identified System Reinforcements

(Overloads initially caused by prior Queue positions with additional contribution to overloading by this project. This project may have a % allocation cost responsibility which will be calculated and reported for the Impact Study)

1, 2, 3, 4. The overloads on the Olive 345/138 kV transformer can be alleviated by the following:

The low side risers are the limiting elements

Upgrade low side risers. Estimated Cost (2013 Dollars): **\$100,000.**

The relay thermal limit is also a limiting element

An engineering study will need to be conducted to determine if the relay thermal limit settings can be adjusted to mitigate the overload. A new relay package will be required if the relay thermal settings cannot be adjusted. Estimated Cost for engineering study (2013 Dollars) for the relay package: **\$10,000.**

5, 6, 7, 8, 9. The overloads on the Olive-Cook 345 kV line can be alleviated by the following:

The Bundled ACSR 954 conductor is the limiting element

A sag check is required to determine if the line section can be operated above its emergency rating. The results of the sag study could prove that no additional upgrades are necessary, that some upgrades on the circuit are necessary, or that the entire 25 mile section of line would need to be rebuilt. Estimated Cost (2013 Dollars) for the sag study: **\$100,000.**

10, 11. The overloads on the OLIVE-X2-052 TAP 345 kV line:

The Bundled ACSR 954 conductor is the limiting element

A sag check is required to determine if the line section can be operated above its emergency rating. The results of the sag study could prove that no additional upgrades are necessary, that some upgrades on the circuit are necessary, or that the entire 15 mile section of line would need to be rebuilt. Estimated Cost (2013 Dollars) for the sag study: **\$60,000.**

12. The X2-052 TAP-DUMONT 345 kV line:

The Bundled ACSR 954 conductor is the limiting element

A sag check is required to determine if the line section can be operated above its emergency rating. The results of the sag study could prove that no additional upgrades are necessary, that some upgrades on the circuit are necessary, or that the entire 15 mile section of line would need to be rebuilt. Estimated Cost (2013 Dollars) for the sag study: **\$60,000.**

The Dumont Breaker G2 is also a limiting element

Replace the breaker. Estimated Cost (2013 Dollars): **\$850,000**

13. The overload on the OLIVE-X2-052 TAP 345 kV line:

The Bundled ACSR 954 conductor is the limiting element

A sag check is required to determine if the line section can be operated above its emergency rating. The results of the sag study could prove that no additional upgrades are necessary, that some upgrades on the circuit are necessary, or that the entire 15 mile section of line would need to be rebuilt. Estimated Cost (2013 Dollars) for the sag study: \$60,000. (as stated above)

The Dumont Breaker G2 is a limiting element

Replace the breaker. Estimated Cost (2013 Dollars): \$850,000 (as stated above)

The Dumont Wavetrap is a limiting element

Replace the wavetrap. Estimated Cost (2013 Dollars): **\$100,000**

The Olive Wavetrap is a limiting element

Replace the wavetrap. Estimated Cost (2013 Dollars): **\$100,000**

14. The overload on the Reynolds-Olive 345 kV line can be alleviated by the following:

Disconnect switch at Reynolds Substation is a limiting element

Upgrade disconnect switch at Reynolds. MISO/NIPSCO will be asked for an estimate if the overload is identified in the Impact Study report.

ACSR 1414 conductor is a limiting element

Rebuild the 70 miles line. Estimated Cost (2013 Dollars): **\$105,000,000.**

The Olive wave trap is a limiting element

Replace the wavetrap. Estimated Cost (2013 Dollars): **\$100,000.**

The Olive Relay Trip Limit (RCTL) is a limiting element

An engineering study will need to be conducted to determine if the relay trip limit settings can be adjusted to mitigate the overload. Estimated Cost (2013 Dollars): **\$10,000.**

15. The overload on the Olive-Cook 345 kV line can be alleviated by the following:

The Bundled ACSR 954 conductor is the limiting element

A sag check is required to determine if the line section can be operated above its emergency rating. The results of the sag study could prove that no additional upgrades are necessary, that some upgrades on the circuit are necessary, or that the entire 25 mile section of line would need to be rebuilt. Estimated Cost (2013 Dollars) for the sag study: \$100,000. (as described above)

The Olive Wavetrap is a limiting element

Replace wavetrap. Estimated Cost (2013 Dollars): **\$100,000**

The Cook Wavetrap is a limiting element

Replace wavetrap. Estimated Cost (2013 Dollars): **\$100,000**

16. The overload on the X2-052 TAP-Dumont 345 kV line can be alleviated by the following:

The Bundled ACSR 954 conductor is the limiting element

A sag check is required to determine if the line section can be operated above its emergency rating. The results of the sag study could prove that no additional upgrades are necessary, that some upgrades on the circuit are necessary, or that the entire 15 mile section of line would need to be rebuilt. Estimated Cost (2013 Dollars) for the sag study: \$60,000. (as described above)

The Dumont Breaker G2 is a limiting element

Replace the breaker. Estimated Cost (2013 Dollars): \$850,000 (as described above)

The Dumont Wavetrap is a limiting element

Replace the wavetrap. Estimated Cost (2013 Dollars): \$100,000 (as described above)

The Olive Wavetrap is a limiting element

Replace the wavetrap. Estimated Cost (2013 Dollars): \$100,000 (as described above)

The Dumont Bus is a limiting element

Replace the bus. Estimated Cost (2013 Dollars): **\$400,000**

The Dumont Riser is a limiting element

Replace the riser. Estimated Cost (2013 Dollars): **\$100,000**

The Olive Riser is a limiting element

Replace the riser. Estimated Cost (2013 Dollars): **\$100,000**

The Dumont Relay Compliance Trip (Relay Compliance Trip Limit 3762 Amps) is a limiting element

An engineering study will need to be conducted to determine if the relay compliance trip limit settings can be adjusted to mitigate the overload. Estimated Cost (2013 Dollars): **\$10,000.**

The Dumont – Olive Circuit (Relay Compliance Trip Limit 3995 Amps) is a limiting element

An engineering study will need to be conducted to determine if the relay compliance trip limit settings can be adjusted to mitigate the overload. Estimated Cost (2013 Dollars): **\$10,000.**

The Dumont CT Thermal Limit (CT Thermal Limit 3995 Amps) is a limiting element

An engineering study will need to be conducted to determine if the CT thermal limit settings can be adjusted to mitigate the overload. Estimated Cost (2013 Dollars): **\$10,000.**

The Dumont Switch (3000A) is a limiting element

Replace the switch. Estimated Cost (2013 Dollars): **\$300,000**

Delivery of Energy Portion of Interconnection Request

(PJM also studied the delivery of the energy portion of this interconnection request. Any problems identified below are likely to result in operational restrictions to the project under study. The developer can proceed with network upgrades to eliminate the operational restriction at their discretion by submitting a Merchant Transmission Interconnection request.

Only the most severely overloaded conditions are listed. There is no guarantee of full delivery of energy for this project by fixing only the conditions listed in this section. With a Transmission Interconnection Request, a subsequent analysis will be performed, which will study all overload conditions associated with the overloaded element(s) identified.)

1. The Y2-010 TAP-05OLIVE 345 kV line (from bus 914010 to bus 243229 ckt 1) loads from 158.17% to 164.57% (**DC power flow**) of its emergency rating (971 MVA) for the single line contingency outage of CONTINGENCY DESCRIPTION ('6489_B2_TOR16002'). This project contributes approximately 62.08 MW to the thermal violation.

CONTINGENCY '6489_B2_TOR16002'

OPEN BRANCH FROM BUS 243878 TO BUS 243230 CKT 1 / 243878
05MEADOW 345 243230 05REYNOL 345 1

OPEN BRANCH FROM BUS 243229 TO BUS 243230 CKT 1 / 243229 05OLIVE
345 243230 05REYNOL 345 1

OPEN BRANCH FROM BUS 243230 TO BUS 255173 CKT 1 / 243230
05REYNOL 345 255173 17RYNLDS 138 1

END

2. The 05MEADOW-05REYNOL 345 kV line (from bus 243878 to bus 243230 ckt 1) loads from 182.9% to 186.87% (**DC power flow**) of its emergency rating (971 MVA) for the single line contingency outage of CONTINGENCY DESCRIPTION ('4689_B2_TOR15257_B'). This project contributes approximately 38.52 MW to the thermal violation.

CONTINGENCY '4689_B2_TOR15257_B'

OPEN BRANCH FROM BUS 914010 TO BUS 243229 CKT 1 / 914010 Y2-010

TAP 345 243229 05OLIVE 345 1

END

Network Impacts (Secondary Point of Interconnection)

The Queue Project #Y2-010 was studied as a 100.0MW (Capacity 13.0MW) injection at the Reynolds 345 kV substation in the AEP area. Project #Y2-010 was evaluated for compliance with reliability criteria for summer peak conditions in 2016. Potential network impacts were as follows:

Generator Deliverability

(Single or N-1 contingencies for the Capacity portion only of the interconnection)

No problems identified

Multiple Facility Contingency

(Double Circuit Tower Line, Line with Failed Breaker and Bus Fault contingencies for the full energy output)

No problems identified

Light Load Analysis

Light Load Studies are to be conducted during later study phases (applicable to wind, coal, nuclear, and pumped storage projects).

Short Circuit

No problems were identified.

1. The 05OLIVE 345/138 kV transformer (from bus 243229 to bus 243353 ckt 2) loads from 103.47% to 103.64% (**DC power flow**) of its emergency rating (818 MVA) for the line fault with failed breaker contingency outage of CONTINGENCY DESCRIPTION ('2980_C2'). This project contributes approximately 8.93 MW to the thermal violation.

CONTINGENCY '2980_C2'

OPEN BRANCH FROM BUS 243206 TO BUS 299951 CKT 1 / 243206

05DUMONT 765 242928 05SOREN 765 1

OPEN BRANCH FROM BUS 243206 TO BUS 243219 CKT 2 / 243206

05DUMONT 765 243219 05DUMONT 345 2

OPEN BRANCH FROM BUS 243219 TO BUS 909180 CKT 2 / 243219

05DUMONT 345 243229 05OLIVE 345 2

END

Please refer to Appendix 1 for a table containing the generators having contribution to this flowgate.

2. The 05OLIVE 345/138 kV transformer (from bus 243229 to bus 243353 ckt 2) loads from 103.62% to 103.79% (**DC power flow**) of its emergency rating (818 MVA) for the line fault with failed breaker contingency outage of CONTINGENCY DESCRIPTION ('2975_C2_X2-052'). This project contributes approximately 8.83 MW to the thermal violation.

CONTINGENCY '2975_C2_X2-052'

```
OPEN BRANCH FROM BUS 243206 TO BUS 243219 CKT 2          / 243206
05DUMONT 765 243219 05DUMONT 345 2
OPEN BRANCH FROM BUS 243219 TO BUS 909180 CKT 2          / 243219
05DUMONT 345 243229 05OLIVE 345 2
OPEN BRANCH FROM BUS 243219 TO BUS 243234 CKT 2          / 243219
05DUMONT 345 243234 05TWIN B 345 2
END
```

Please refer to Appendix 2 for a table containing the generators having contribution to this flowgate.

3. The 05OLIVE 345/138 kV transformer (from bus 243229 to bus 243353 ckt 2) loads from 103.62% to 103.79% (**DC power flow**) of its emergency rating (818 MVA) for the line fault with failed breaker contingency outage of CONTINGENCY DESCRIPTION ('2977_C2_X2-052'). This project contributes approximately 8.83 MW to the thermal violation.

CONTINGENCY '2977_C2_X2-052'

```
OPEN BRANCH FROM BUS 243206 TO BUS 243219 CKT 2          / 243206
05DUMONT 765 243219 05DUMONT 345 2
OPEN BRANCH FROM BUS 243219 TO BUS 909180 CKT 2          / 243219
05DUMONT 345 243229 05OLIVE 345 2
OPEN BRANCH FROM BUS 243219 TO BUS 243234 CKT 1          / 243219
05DUMONT 345 243234 05TWIN B 345 1
END
```

Please refer to Appendix 3 for a table containing the generators having contribution to this flowgate.

4. The 05OLIVE 345/138 kV transformer (from bus 243229 to bus 243353 ckt 2) loads from 106.04% to 106.21% (**DC power flow**) of its emergency rating (818 MVA) for the line fault with failed breaker contingency outage of CONTINGENCY DESCRIPTION ('2979_C2_X1-020_X2-052'). This project contributes approximately 8.85 MW to the thermal violation.

CONTINGENCY '2979_C2_X1-020_X2-052'

OPEN BRANCH FROM BUS 243206 TO BUS 907020 CKT 1 / 243206
 05DUMONT 765 243207 05GRNTWN 765 1
 OPEN BRANCH FROM BUS 243206 TO BUS 243219 CKT 2 / 243206
 05DUMONT 765 243219 05DUMONT 345 2
 OPEN BRANCH FROM BUS 243219 TO BUS 909180 CKT 2 / 243219
 05DUMONT 345 243229 05OLIVE 345 2
 END

Please refer to Appendix 4 for a table containing the generators having contribution to this flowgate.

5. The 05OLIVE-05COOK 345 kV line (from bus 243229 to bus 243215 ckt 1) loads from 107.78% to 109.32% (**DC power flow**) of its emergency rating (1409 MVA) for the tower line contingency outage of CONTINGENCY DESCRIPTION ('446_A'). This project contributes approximately 22.11 MW to the thermal violation.

CONTINGENCY '446_A'
 OPEN BRANCH FROM BUS 243219 TO BUS 909180 CKT 2 / 243219
 05DUMONT 345 909180 X2-052 TAP 345 2
 OPEN BRANCH FROM BUS 243219 TO BUS 243232 CKT 1 / 243219
 05DUMONT 345 243232 05SORENS 345 1
 END

Please refer to Appendix 5 for a table containing the generators having contribution to this flowgate.

6. The 05OLIVE-05COOK 345 kV line (from bus 243229 to bus 243215 ckt 1) loads from 108.9% to 110.44% (**DC power flow**) of its emergency rating (1409 MVA) for the line fault with failed breaker contingency outage of CONTINGENCY DESCRIPTION ('2975_C2_X2-052'). This project contributes approximately 22.09 MW to the thermal violation.

CONTINGENCY '2975_C2_X2-052'
 OPEN BRANCH FROM BUS 243206 TO BUS 243219 CKT 2 / 243206
 05DUMONT 765 243219 05DUMONT 345 2
 OPEN BRANCH FROM BUS 243219 TO BUS 909180 CKT 2 / 243219
 05DUMONT 345 243229 05OLIVE 345 2
 OPEN BRANCH FROM BUS 243219 TO BUS 243234 CKT 2 / 243219
 05DUMONT 345 243234 05TWIN B 345 2
 END

Please refer to Appendix 6 for a table containing the generators having contribution to this flowgate.

7. The 05OLIVE-05COOK 345 kV line (from bus 243229 to bus 243215 ckt 1) loads from 108.9% to 110.44% (**DC power flow**) of its emergency rating (1409 MVA) for the line fault

with failed breaker contingency outage of CONTINGENCY DESCRIPTION ('2977_C2_X2-052'). This project contributes approximately 22.09 MW to the thermal violation.

CONTINGENCY '2977_C2_X2-052'

OPEN BRANCH FROM BUS 243206 TO BUS 243219 CKT 2	/ 243206
05DUMONT 765 243219 05DUMONT 345 2	
OPEN BRANCH FROM BUS 243219 TO BUS 909180 CKT 2	/ 243219
05DUMONT 345 243229 05OLIVE 345 2	
OPEN BRANCH FROM BUS 243219 TO BUS 243234 CKT 1	/ 243219
05DUMONT 345 243234 05TWIN B 345 1	
END	

Please refer to Appendix 7 for a table containing the generators having contribution to this flowgate.

8. The 05OLIVE-05COOK 345 kV line (from bus 243229 to bus 243215 ckt 1) loads from 109.76% to 111.3% (**DC power flow**) of its emergency rating (1409 MVA) for the line fault with failed breaker contingency outage of CONTINGENCY DESCRIPTION ('2979_C2_X1-020_X2-052'). This project contributes approximately 22.06 MW to the thermal violation.

CONTINGENCY '2979_C2_X1-020_X2-052'

OPEN BRANCH FROM BUS 243206 TO BUS 907020 CKT 1	/ 243206
05DUMONT 765 243207 05GRNTWN 765 1	
OPEN BRANCH FROM BUS 243206 TO BUS 243219 CKT 2	/ 243206
05DUMONT 765 243219 05DUMONT 345 2	
OPEN BRANCH FROM BUS 243219 TO BUS 909180 CKT 2	/ 243219
05DUMONT 345 243229 05OLIVE 345 2	
END	

Please refer to Appendix 8 for a table containing the generators having contribution to this flowgate.

9. The 05OLIVE-X2-052 TAP 345 kV line (from bus 243229 to bus 909180 ckt 2) loads from 118.81% to 120.2% (**DC power flow**) of its emergency rating (1409 MVA) for the line fault with failed breaker contingency outage of CONTINGENCY DESCRIPTION ('112-65-BT3-4__'). This project contributes approximately 20.12 MW to the thermal violation.

CONTINGENCY '112-65-BT3-4__'

/ CONTINGENCY # 375

TRIP BRANCH FROM BUS 270644 TO BUS 243206 CKT 1	/ WILTO; 765
05DUMONT 765	
TRIP BRANCH FROM BUS 275232 TO BUS 270644 CKT 1	/ WILTO;3M 345
WILTO; 765	
TRIP BRANCH FROM BUS 275232 TO BUS 270926 CKT 1	/ WILTO;3M 345
WILTO; B 345	

TRIP BRANCH FROM BUS 275232 TO BUS 275332 CKT 1 / WILTO;3M 345
WILTO;3C 33
END

Please refer to Appendix 9 for a table containing the generators having contribution to this flowgate.

10. The 05OLIVE-X2-052 TAP 345 kV line (from bus 243229 to bus 909180 ckt 2) loads from 118.81% to 120.21% (**DC power flow**) of its emergency rating (1409 MVA) for the line fault with failed breaker contingency outage of CONTINGENCY DESCRIPTION ('112-65-BT4-5___'). This project contributes approximately 20.12 MW to the thermal violation.

CONTINGENCY '112-65-BT4-5___' / CONTINGENCY # 376
TRIP BRANCH FROM BUS 270644 TO BUS 243206 CKT 1 / WILTO; 765
05DUMONT 765
TRIP BRANCH FROM BUS 275233 TO BUS 270644 CKT 1 / WILTO;4M 345
WILTO; 765
TRIP BRANCH FROM BUS 275233 TO BUS 270927 CKT 1 / WILTO;4M 345
WILTO; R 345
TRIP BRANCH FROM BUS 275233 TO BUS 275333 CKT 1 / WILTO;4M 345
WILTO;4C 33
END

Please refer to Appendix 10 for a table containing the generators having contribution to this flowgate.

11. The 05OLIVE-X2-052 TAP 345 kV line (from bus 243229 to bus 909180 ckt 2) loads from 120.87% to 122.27% (**DC power flow**) of its emergency rating (1409 MVA) for the line fault with failed breaker contingency outage of CONTINGENCY DESCRIPTION ('2978_C2_X1-020'). This project contributes approximately 19.74 MW to the thermal violation.

CONTINGENCY '2978_C2_X1-020'
OPEN BRANCH FROM BUS 243206 TO BUS 907020 CKT 1 / 243206
05DUMONT 765 243207 05GRNTWN 765 1
OPEN BRANCH FROM BUS 243206 TO BUS 270644 CKT 1 / 243206
05DUMONT 765 270644 WILTO; 765 1
END

Please refer to Appendix 11 for a table containing the generators having contribution to this flowgate.

12. The 05EUGENE-08CAYSUB 345 kV line (from bus 243221 to bus 249504 ckt 1) loads from 124.02% to 125.08% (**DC power flow**) of its emergency rating (1386 MVA) for the line fault with failed breaker contingency outage of CONTINGENCY DESCRIPTION ('2929_C2'). This project contributes approximately 14.67 MW to the thermal violation.

CONTINGENCY '2929_C2'

OPEN BRANCH FROM BUS 243207 TO BUS 243208 CKT 1 / 243207
05GRNTWN 765 243208 05JEFRSO 765 1
OPEN BRANCH FROM BUS 243208 TO BUS 243209 CKT 1 / 243208 05JEFRSO
765 243209 05ROCKPT 765 1
END

Please refer to Appendix 12 for a table containing the generators having contribution to this flowgate.

13. The 05OLIVE-X2-052 TAP 345 kV line (from bus 243229 to bus 909180 ckt 2) loads from 138.72% to 140.98% (**DC power flow**) of its emergency rating (1409 MVA) for the line fault with failed breaker contingency outage of CONTINGENCY DESCRIPTION ('2877_C2_05OLIVE 345-B1'). This project contributes approximately 32.47 MW to the thermal violation.

CONTINGENCY '2877_C2_05OLIVE 345-B1'

OPEN BRANCH FROM BUS 243215 TO BUS 243229 CKT 1 / 243215 05COOK
345 243229 05OLIVE 345 1
OPEN BRANCH FROM BUS 243229 TO BUS 243353 CKT 2 / 243229 05OLIVE
345 243353 05OLIVE 138 2
OPEN BRANCH FROM BUS 243327 TO BUS 243353 CKT 1 / 243327
05LAPORT 138 243353 05OLIVE 138 1
END

Please refer to Appendix 13 for a table containing the generators having contribution to this flowgate.

14. The 05REYNOL-05OLIVE 345 kV line (from bus 243230 to bus 243229 ckt 1) loads from 147.4% to 151.03% (**DC power flow**) of its emergency rating (972 MVA) for the line fault with failed breaker contingency outage of CONTINGENCY DESCRIPTION ('4690_C2_05OLIVE 345-D'). This project contributes approximately 35.28 MW to the thermal violation.

CONTINGENCY '4690_C2_05OLIVE 345-D'

OPEN BRANCH FROM BUS 243878 TO BUS 243229 CKT 1 / 243878
05MEADOW 345 243229 05OLIVE 345 1
OPEN BRANCH FROM BUS 243229 TO BUS 274804 CKT 1 / 243229 05OLIVE
345 274804 UPNOR;RP 345 1
END

Please refer to Appendix 14 for a table containing the generators having contribution to this flowgate.

15. The 05OLIVE-05COOK 345 kV line (from bus 243229 to bus 243215 ckt 1) loads from 143.7% to 145.58% (**DC power flow**) of its emergency rating (1409 MVA) for the line fault with failed breaker contingency outage of CONTINGENCY DESCRIPTION ('2879_C2_05OLIVE 345-E1_X2-052'). This project contributes approximately 26.95 MW to the thermal violation.

CONTINGENCY '2879_C2_05OLIVE 345-E1_X2-052'

OPEN BRANCH FROM BUS 243219 TO BUS 909180 CKT 2	/ 243219
05DUMONT 345 243229 05OLIVE 345 2	
OPEN BRANCH FROM BUS 243229 TO BUS 243353 CKT 2	/ 243229 05OLIVE
345 243353 05OLIVE 138 2	
OPEN BRANCH FROM BUS 243327 TO BUS 243353 CKT 1	/ 243327
05LAPORT 138 243353 05OLIVE 138 1	
END	

Please refer to Appendix 15 for a table containing the generators having contribution to this flowgate.

16. The X2-052 TAP-05DUMONT 345 kV line (from bus 909180 to bus 243219 ckt 2) loads from 170.62% to 172.89% (**DC power flow**) of its emergency rating (1409 MVA) for the line fault with failed breaker contingency outage of CONTINGENCY DESCRIPTION ('2877_C2_05OLIVE 345-B1'). This project contributes approximately 32.47 MW to the thermal violation.

CONTINGENCY '2877_C2_05OLIVE 345-B1'

OPEN BRANCH FROM BUS 243215 TO BUS 243229 CKT 1	/ 243215 05COOK
345 243229 05OLIVE 345 1	
OPEN BRANCH FROM BUS 243229 TO BUS 243353 CKT 2	/ 243229 05OLIVE
345 243353 05OLIVE 138 2	
OPEN BRANCH FROM BUS 243327 TO BUS 243353 CKT 1	/ 243327
05LAPORT 138 243353 05OLIVE 138 1	
END	

Please refer to Appendix 16 for a table containing the generators having contribution to this flowgate.

Appendices for the Primary Interconnection Option

Appendix 1

Bus Number	Bus Name	Full Contribution
243859	05FR11_E	5.52
243862	05FR12_E	5.42
243864	05FR21_E	5.8
247924	05FRCS22_E	5.55
247925	05FRCS-3_E	11.24
247926	05FRCS-4_E	8.45
246909	05MLCS1_E	13.26
247930	05MLCS-2_E	13.26
246427	BERRIENS	-1.18
246431	BUCHANAN	-.93
246397	ELKHARTH	-.24
246536	MOTTVILL	-.08
292417	T-127 E	13.28
292735	T-183 C	3.32
292736	T-183 E	13.28
292741	T-184 C	3.32
292742	T-184 E	13.28
246416	TWBRANCH	-.49
887741	U1-087 C	1.37
887742	U1-087 E	9.19
887751	U1-088 C	.92
887752	U1-088 E	6.13
891021	U4-003 C	2.16
891022	U4-003 E	14.44
LTF	X2-042	10.45
909181	X2-052	114.26
900404	X3-028 C	59.32
LTF	X3-096	6.4
LTF	X3-097	9.07
LTF	X3-098	8.6
LTF	X4-041	8.5
LTF	Y2-007	8.85
LTF	Y2-008	10.63
914011	Y2-010 C OP1	1.64
914012	Y2-010 E OP1	10.97

Appendix 2

Bus Number	Bus Name	Full Contribution
243859	05FR11_E	5.46
243862	05FR12_E	5.36
243864	05FR21_E	5.73
247924	05FRCS22_E	5.49
247925	05FRCS-3_E	11.12
247926	05FRCS-4_E	8.36
246909	05MLCS1_E	13.12
247930	05MLCS-2_E	13.12
246427	BERRIENS	-1.2
246431	BUCHANAN	-.94
246397	ELKHARTH	-.24
246536	MOTTVILL	-.08
292417	T-127 E	13.13
292735	T-183 C	3.28
292736	T-183 E	13.13
292741	T-184 C	3.28
292742	T-184 E	13.13
246416	TWBRANCH	-.51
887741	U1-087 C	1.36
887742	U1-087 E	9.09
887751	U1-088 C	.91
887752	U1-088 E	6.06
891021	U4-003 C	2.13
891022	U4-003 E	14.28
LTF	X2-042	10.27
909181	X2-052	113.22
900404	X3-028 C	58.24
LTF	X3-096	6.23
LTF	X3-097	8.83
LTF	X3-098	8.37
LTF	X4-041	8.27
LTF	Y2-007	8.62
LTF	Y2-008	10.44
914011	Y2-010 C OP1	1.62
914012	Y2-010 E OP1	10.87

Appendix 3

Bus Number	Bus Name	Full Contribution
243859	05FR11_E	5.46
243862	05FR12_E	5.36
243864	05FR21_E	5.73
247924	05FRCS22_E	5.49
247925	05FRCS-3_E	11.12
247926	05FRCS-4_E	8.36
246909	05MLCS1_E	13.12
247930	05MLCS-2_E	13.12
246427	BERRIENS	-1.2
246431	BUCHANAN	-.94
246397	ELKHARTH	-.24
246536	MOTTVILL	-.08
292417	T-127 E	13.13
292735	T-183 C	3.28
292736	T-183 E	13.13
292741	T-184 C	3.28
292742	T-184 E	13.13
246416	TWBRANCH	-.51
887741	U1-087 C	1.36
887742	U1-087 E	9.09
887751	U1-088 C	.91
887752	U1-088 E	6.06
891021	U4-003 C	2.13
891022	U4-003 E	14.28
LTF	X2-042	10.27
909181	X2-052	113.22
900404	X3-028 C	58.24
LTF	X3-096	6.23
LTF	X3-097	8.83
LTF	X3-098	8.37
LTF	X4-041	8.27
LTF	Y2-007	8.62
LTF	Y2-008	10.44
914011	Y2-010 C OP1	1.62
914012	Y2-010 E OP1	10.87

Appendix 4

Bus Number	Bus Name	Full Contribution
243859	05FR11_E	5.49
243862	05FR12_E	5.4
243864	05FR21_E	5.77
247924	05FRCS22_E	5.53
247925	05FRCS-3_E	11.19
247926	05FRCS-4_E	8.42
246909	05MLCS1_E	13.16
247930	05MLCS-2_E	13.16
246427	BERRIENS	-1.2
246431	BUCHANAN	-.94
246397	ELKHARTH	-.24
246536	MOTTVILL	-.08
292417	T-127 E	13.18
292735	T-183 C	3.29
292736	T-183 E	13.18
292741	T-184 C	3.29
292742	T-184 E	13.18
246416	TWBRANCH	-.5
887741	U1-087 C	1.37
887742	U1-087 E	9.15
887751	U1-088 C	.91
887752	U1-088 E	6.1
891021	U4-003 C	2.14
891022	U4-003 E	14.33
LTF	X2-042	11.17
909181	X2-052	112.55
900404	X3-028 C	63.77
LTF	X3-096	6.05
LTF	X3-097	8.58
LTF	X3-098	8.13
LTF	X4-041	8.03
LTF	Y2-007	8.35
LTF	Y2-008	11.32
914011	Y2-010 C OP1	1.62
914012	Y2-010 E OP1	10.84

Appendix 5

Bus Number	Bus Name	Full Contribution
243858	05FR11_C	.08
243859	05FR11_E	13.76
243861	05FR12_C	.08
243862	05FR12_E	13.53
243863	05FR21_C	.09
243864	05FR21_E	14.46
243866	05FRCS22_C	.08
247924	05FRCS22_E	13.85
243870	05FRCS-3_C	.17
247925	05FRCS-3_E	28.04
243873	05FRCS-4_C	.12
247926	05FRCS-4_E	21.08
246908	05MLCS1_C	.19
246909	05MLCS1_E	32.83
246910	05MLCS-2_C	.19
247930	05MLCS-2_E	32.83
292535	CE23CL12	.27
292536	CE23EL12	1.07
274670	CRAWF;7G	8.42
274671	CRAWF;7Y	8.49
274672	CRAWF;8U	25.56
274849	CRESC;1U	3.74
294702	CRESC;2U	3.3
274751	CRETE;1U	.19
274752	CRETE;2U	.19
274753	CRETE;3U	.19
274754	CRETE;4U	.19
274858	EASYR;U2	12.58
274673	FISK ;9U	26.12
990700	FREEPT_G	4.27
299901	K-002 E	4.24
990901	L-005 E	8.08
274850	M HIL;RU	3.38
293061	N-015 E	9.24
293120	N-021 C	.08
293121	N-021 E	.32
293130	N-022 C	.15
293131	N-022 E	.59
293140	N-023 C	.15
293141	N-023 E	.59
293150	N-024 C	.15

293151	N-024 E	.59
293160	N-025 C	.15
293161	N-025 E	.59
293190	O-003 C	.12
293191	O-003 E	.42
293513	O-009 C1	1.35
293514	O-009 C2	.69
293515	O-009 C3	.76
293516	O-009 E1	5.42
293517	O-009 E2	2.75
293518	O-009 E3	3.03
293655	O-023 E	17.64
293715	O-029 E	5.79
293716	O-029 E	3.18
293717	O-029 E	2.92
290007	O-033 E	1.07
293771	O-035 E	4.12
290021	O-050 E	11.76
293645	O22E	17.64
294392	P-010 E	11.74
294401	P-011 E1	5.41
294410	P-011 E2	5.41
290051	P-014 E	4.3
294500	P-020 C	2.74
294502	P-020 E	10.96
295103	P-024 C	.26
295104	P-024 E	1.05
295106	P-025 C	.26
295107	P-025 E	1.05
290053	P-026 E	1.07
294670	P-037 C	1.86
294671	P-037 E	7.44
294700	P-040 C	.27
294701	P-040 E	1.1
294763	P-046 E	5.34
290089	Q-039 C	1.99
290090	Q-039 E	5.12
290108	Q-057 E	12.98
882311	Q-066	.17
882331	Q-067B	.25
295990	R-016 C1	.84
295992	R-016 C2	.84
295991	R-016 E1	3.36
295993	R-016 E2	3.36

296335	R-033 1	6.63
296336	R-033 2	6.63
296346	R-033 3	4.8
296348	R-033 4	4.8
296827	R-079 C1	2.24
296741	R-079 C2	2.24
296828	R-079 E1	8.95
296740	R-079 E2	8.95
290294	S-036 C1	2.93
290295	S-036 E1	11.7
290298	S-037 C1	2.93
290299	S-037 E1	11.7
884891	S-062 C1	2.66
884901	S-062 C2	2.64
884911	S-062 C3	2.66
884892	S-062 E1	10.63
884902	S-062 E2	10.65
884912	S-062 E3	10.63
274679	SLINE;3U	16.02
274680	SLINE;4U	26.41
885861	T-074 1	.56
885862	T-074 2	.56
885961	T-099 C	1.35
885962	T-099 E	5.41
292416	T-127 C	.19
292417	T-127 E	32.87
886211	T-143 C1	1.74
886221	T-143 C2	1.74
886212	T-143 E1	6.97
886222	T-143 E2	6.97
886261	T-148 C	1.35
886262	T-148 E	5.41
292735	T-183 C	8.22
292736	T-183 E	32.87
292741	T-184 C	8.22
292742	T-184 E	32.87
274861	TCROP;1U	7.5
274862	TCROP;2U	14.56
887641	U1-049 C	1.09
887642	U1-049 E	7.27
887741	U1-087 C	3.43
887742	U1-087 E	22.93
887751	U1-088 C	2.28
887752	U1-088 E	15.29

890511	U3-021 1	3.42
890521	U3-021 2	3.42
891021	U4-003 C	5.34
891022	U4-003 E	35.75
891131	U4-027	6.72
891171	U4-033	.11
274814	UPNOR;0U	.13
274805	UPNOR;1U	.13
274806	UPNOR;2U	.13
274807	UPNOR;3U	.13
274808	UPNOR;4U	.13
274809	UPNOR;5U	.13
274810	UPNOR;6U	.13
274811	UPNOR;7U	.13
274812	UPNOR;8U	.13
274813	UPNOR;9U	.13
274815	UPNOR;XU	.13
274816	UPNOR;YU	.13
892051	V1-022 1	13.56
892061	V1-022 2	13.56
LTF	V3-012	15.46
900371	V4-046	1.34
900381	V4-047	1.34
LTF	W2-033	20.73
902491	W2-079 C	.5
902492	W2-079 E	.81
903432	W3-046	3.97
903442	W3-046	3.68
903452	W3-046	3.97
903462	W3-046	3.68
LTF	W3-083	9.63
903791	W3-132 C	.5
903792	W3-132 E	.81
905252	W4-033 E1	.36
905262	W4-033 E2	.12
905471	W4-084	.26
905491	W4-086	.16
905501	W4-087	.3
907141	X1-045	.21
907361	X1-087	1.28
907432	X1-099 E	.29
909041	X2-019 C	12.53
LTF	X2-042	27.44
909181	X2-052	273.12

910541	X3-005 C	.3
910542	X3-005 E	.49
LTF	X3-020	11.25
910711	X3-045 1	1.13
910721	X3-045 2	1.16
LTF	X3-096	27.05
LTF	X3-097	38.36
LTF	X3-098	36.36
LTF	X4-029D	11.98
LTF	X4-041	35.92
LTF	Y1-002	61.87
LTF	Y1-004	14.05
913011	Y1-005 1	13.75
913021	Y1-005 2	13.74
LTF	Y1-007	9.76
LTF	Y1-041	11.98
913522	Y1-078 E	1.61
LTF	Y2-004	18.76
LTF	Y2-005	18.76
LTF	Y2-006	10.9
LTF	Y2-007	37.52
LTF	Y2-008	28.44
914011	Y2-010 C OP1	3.97
914012	Y2-010 E OP1	26.54

Appendix 6

Bus Number	Bus Name	Full Contribution
243858	05FR11_C	.08
243859	05FR11_E	13.75
243861	05FR12_C	.08
243862	05FR12_E	13.52
243863	05FR21_C	.09
243864	05FR21_E	14.45
243866	05FRCS22_C	.08
247924	05FRCS22_E	13.84
243870	05FRCS-3_C	.17
247925	05FRCS-3_E	28.02
243873	05FRCS-4_C	.12
247926	05FRCS-4_E	21.07
246908	05MLCS1_C	.19
246909	05MLCS1_E	32.8
246910	05MLCS-2_C	.19
247930	05MLCS-2_E	32.8
292535	CE23CL12	.27
292536	CE23EL12	1.09
274670	CRAWF;7G	8.55
274671	CRAWF;7Y	8.62
274672	CRAWF;8U	25.95
274849	CRESC;1U	3.79
294702	CRESC;2U	3.34
274751	CRETE;1U	.19
274752	CRETE;2U	.19
274753	CRETE;3U	.19
274754	CRETE;4U	.19
274858	EASYR;U2	12.76
274673	FISK ;9U	26.53
990700	FREEPT_G	4.34
299901	K-002 E	4.3
990901	L-005 E	8.19
274850	M HIL;RU	3.43
293061	N-015 E	9.38
293120	N-021 C	.08
293121	N-021 E	.33
293130	N-022 C	.15
293131	N-022 E	.6
293140	N-023 C	.15
293141	N-023 E	.6
293150	N-024 C	.15

293151	N-024 E	.6
293160	N-025 C	.15
293161	N-025 E	.6
293190	O-003 C	.12
293191	O-003 E	.42
293513	O-009 C1	1.37
293514	O-009 C2	.7
293515	O-009 C3	.77
293516	O-009 E1	5.49
293517	O-009 E2	2.79
293518	O-009 E3	3.07
293655	O-023 E	17.91
293715	O-029 E	5.87
293716	O-029 E	3.22
293717	O-029 E	2.96
290007	O-033 E	1.09
293771	O-035 E	4.18
290021	O-050 E	11.93
293645	O22E	17.91
294392	P-010 E	11.91
294401	P-011 E1	5.49
294410	P-011 E2	5.49
290051	P-014 E	4.36
294500	P-020 C	2.78
294502	P-020 E	11.12
295103	P-024 C	.27
295104	P-024 E	1.06
295106	P-025 C	.27
295107	P-025 E	1.06
290053	P-026 E	1.09
294670	P-037 C	1.89
294671	P-037 E	7.54
294700	P-040 C	.28
294701	P-040 E	1.11
294763	P-046 E	5.42
290089	Q-039 C	2.02
290090	Q-039 E	5.19
290108	Q-057 E	13.18
882311	Q-066	.18
882331	Q-067B	.26
295990	R-016 C1	.85
295992	R-016 C2	.85
295991	R-016 E1	3.41
295993	R-016 E2	3.41

296335	R-033 1	6.72
296336	R-033 2	6.72
296346	R-033 3	4.87
296348	R-033 4	4.87
296827	R-079 C1	2.27
296741	R-079 C2	2.27
296828	R-079 E1	9.08
296740	R-079 E2	9.08
290294	S-036 C1	2.97
290295	S-036 E1	11.87
290298	S-037 C1	2.97
290299	S-037 E1	11.87
884891	S-062 C1	2.7
884901	S-062 C2	2.68
884911	S-062 C3	2.7
884892	S-062 E1	10.78
884902	S-062 E2	10.8
884912	S-062 E3	10.78
274679	SLINE;3U	16.32
274680	SLINE;4U	26.88
885861	T-074 1	.57
885862	T-074 2	.57
885961	T-099 C	1.37
885962	T-099 E	5.49
292416	T-127 C	.19
292417	T-127 E	32.84
886211	T-143 C1	1.77
886221	T-143 C2	1.77
886212	T-143 E1	7.07
886222	T-143 E2	7.07
886261	T-148 C	1.37
886262	T-148 E	5.49
292735	T-183 C	8.21
292736	T-183 E	32.84
292741	T-184 C	8.21
292742	T-184 E	32.84
274861	TCROP;1U	7.61
274862	TCROP;2U	14.77
887641	U1-049 C	1.1
887642	U1-049 E	7.38
887741	U1-087 C	3.42
887742	U1-087 E	22.91
887751	U1-088 C	2.28
887752	U1-088 E	15.28

890511	U3-021 1	3.48
890521	U3-021 2	3.48
891021	U4-003 C	5.34
891022	U4-003 E	35.72
891131	U4-027	6.81
891171	U4-033	.11
274814	UPNOR;0U	.13
274805	UPNOR;1U	.13
274806	UPNOR;2U	.13
274807	UPNOR;3U	.13
274808	UPNOR;4U	.13
274809	UPNOR;5U	.13
274810	UPNOR;6U	.13
274811	UPNOR;7U	.13
274812	UPNOR;8U	.13
274813	UPNOR;9U	.13
274815	UPNOR;XU	.13
274816	UPNOR;YU	.13
892051	V1-022 1	13.77
892061	V1-022 2	13.77
LTF	V3-012	15.58
900371	V4-046	1.36
900381	V4-047	1.36
LTF	W2-033	21.15
902491	W2-079 C	.5
902492	W2-079 E	.82
903432	W3-046	4.03
903442	W3-046	3.73
903452	W3-046	4.03
903462	W3-046	3.73
LTF	W3-083	9.76
903791	W3-132 C	.51
903792	W3-132 E	.82
905252	W4-033 E1	.36
905262	W4-033 E2	.12
905471	W4-084	.26
905491	W4-086	.16
905501	W4-087	.3
907141	X1-045	.21
907361	X1-087	1.3
907432	X1-099 E	.29
909041	X2-019 C	12.72
LTF	X2-042	27.48
909181	X2-052	272.64

910541	X3-005 C	.31
910542	X3-005 E	.5
LTF	X3-020	11.35
910711	X3-045 1	1.15
910721	X3-045 2	1.18
LTF	X3-096	27.3
LTF	X3-097	38.71
LTF	X3-098	36.7
LTF	X4-029D	12.15
LTF	X4-041	36.26
LTF	Y1-002	63.03
LTF	Y1-004	14.15
913011	Y1-005 1	13.94
913021	Y1-005 2	13.94
LTF	Y1-007	9.82
LTF	Y1-041	12.15
913522	Y1-078 E	1.63
LTF	Y2-004	18.93
LTF	Y2-005	18.93
LTF	Y2-006	10.92
LTF	Y2-007	37.86
LTF	Y2-008	28.49
914011	Y2-010 C OP1	3.96
914012	Y2-010 E OP1	26.5

Appendix 7

Bus Number	Bus Name	Full Contribution
243858	05FR11_C	.08
243859	05FR11_E	13.75
243861	05FR12_C	.08
243862	05FR12_E	13.52
243863	05FR21_C	.09
243864	05FR21_E	14.45
243866	05FRCS22_C	.08
247924	05FRCS22_E	13.84
243870	05FRCS-3_C	.17
247925	05FRCS-3_E	28.02
243873	05FRCS-4_C	.12
247926	05FRCS-4_E	21.07
246908	05MLCS1_C	.19
246909	05MLCS1_E	32.8
246910	05MLCS-2_C	.19
247930	05MLCS-2_E	32.8
292535	CE23CL12	.27
292536	CE23EL12	1.09
274670	CRAWF;7G	8.55
274671	CRAWF;7Y	8.62
274672	CRAWF;8U	25.95
274849	CRESC;1U	3.79
294702	CRESC;2U	3.34
274751	CRETE;1U	.19
274752	CRETE;2U	.19
274753	CRETE;3U	.19
274754	CRETE;4U	.19
274858	EASYR;U2	12.76
274673	FISK ;9U	26.53
990700	FREEPT_G	4.34
299901	K-002 E	4.3
990901	L-005 E	8.19
274850	M HIL;RU	3.43
293061	N-015 E	9.38
293120	N-021 C	.08
293121	N-021 E	.33
293130	N-022 C	.15
293131	N-022 E	.6
293140	N-023 C	.15
293141	N-023 E	.6
293150	N-024 C	.15

293151	N-024 E	.6
293160	N-025 C	.15
293161	N-025 E	.6
293190	O-003 C	.12
293191	O-003 E	.42
293513	O-009 C1	1.37
293514	O-009 C2	.7
293515	O-009 C3	.77
293516	O-009 E1	5.49
293517	O-009 E2	2.79
293518	O-009 E3	3.07
293655	O-023 E	17.91
293715	O-029 E	5.87
293716	O-029 E	3.22
293717	O-029 E	2.96
290007	O-033 E	1.09
293771	O-035 E	4.18
290021	O-050 E	11.93
293645	O22E	17.91
294392	P-010 E	11.91
294401	P-011 E1	5.49
294410	P-011 E2	5.49
290051	P-014 E	4.36
294500	P-020 C	2.78
294502	P-020 E	11.12
295103	P-024 C	.27
295104	P-024 E	1.06
295106	P-025 C	.27
295107	P-025 E	1.06
290053	P-026 E	1.09
294670	P-037 C	1.89
294671	P-037 E	7.54
294700	P-040 C	.28
294701	P-040 E	1.11
294763	P-046 E	5.42
290089	Q-039 C	2.02
290090	Q-039 E	5.19
290108	Q-057 E	13.18
882311	Q-066	.18
882331	Q-067B	.26
295990	R-016 C1	.85
295992	R-016 C2	.85
295991	R-016 E1	3.41
295993	R-016 E2	3.41

296335	R-033 1	6.72
296336	R-033 2	6.72
296346	R-033 3	4.87
296348	R-033 4	4.87
296827	R-079 C1	2.27
296741	R-079 C2	2.27
296828	R-079 E1	9.08
296740	R-079 E2	9.08
290294	S-036 C1	2.97
290295	S-036 E1	11.87
290298	S-037 C1	2.97
290299	S-037 E1	11.87
884891	S-062 C1	2.7
884901	S-062 C2	2.68
884911	S-062 C3	2.7
884892	S-062 E1	10.78
884902	S-062 E2	10.8
884912	S-062 E3	10.78
274679	SLINE;3U	16.32
274680	SLINE;4U	26.88
885861	T-074 1	.57
885862	T-074 2	.57
885961	T-099 C	1.37
885962	T-099 E	5.49
292416	T-127 C	.19
292417	T-127 E	32.84
886211	T-143 C1	1.77
886221	T-143 C2	1.77
886212	T-143 E1	7.07
886222	T-143 E2	7.07
886261	T-148 C	1.37
886262	T-148 E	5.49
292735	T-183 C	8.21
292736	T-183 E	32.84
292741	T-184 C	8.21
292742	T-184 E	32.84
274861	TCROP;1U	7.61
274862	TCROP;2U	14.77
887641	U1-049 C	1.1
887642	U1-049 E	7.38
887741	U1-087 C	3.42
887742	U1-087 E	22.91
887751	U1-088 C	2.28
887752	U1-088 E	15.28

890511	U3-021 1	3.48
890521	U3-021 2	3.48
891021	U4-003 C	5.34
891022	U4-003 E	35.72
891131	U4-027	6.81
891171	U4-033	.11
274814	UPNOR;0U	.13
274805	UPNOR;1U	.13
274806	UPNOR;2U	.13
274807	UPNOR;3U	.13
274808	UPNOR;4U	.13
274809	UPNOR;5U	.13
274810	UPNOR;6U	.13
274811	UPNOR;7U	.13
274812	UPNOR;8U	.13
274813	UPNOR;9U	.13
274815	UPNOR;XU	.13
274816	UPNOR;YU	.13
892051	V1-022 1	13.77
892061	V1-022 2	13.77
LTF	V3-012	15.58
900371	V4-046	1.36
900381	V4-047	1.36
LTF	W2-033	21.15
902491	W2-079 C	.5
902492	W2-079 E	.82
903432	W3-046	4.03
903442	W3-046	3.73
903452	W3-046	4.03
903462	W3-046	3.73
LTF	W3-083	9.76
903791	W3-132 C	.51
903792	W3-132 E	.82
905252	W4-033 E1	.36
905262	W4-033 E2	.12
905471	W4-084	.26
905491	W4-086	.16
905501	W4-087	.3
907141	X1-045	.21
907361	X1-087	1.3
907432	X1-099 E	.29
909041	X2-019 C	12.72
LTF	X2-042	27.48
909181	X2-052	272.64

910541	X3-005 C	.31
910542	X3-005 E	.5
LTF	X3-020	11.35
910711	X3-045 1	1.15
910721	X3-045 2	1.18
LTF	X3-096	27.3
LTF	X3-097	38.71
LTF	X3-098	36.7
LTF	X4-029D	12.15
LTF	X4-041	36.26
LTF	Y1-002	63.03
LTF	Y1-004	14.15
913011	Y1-005 1	13.94
913021	Y1-005 2	13.94
LTF	Y1-007	9.82
LTF	Y1-041	12.15
913522	Y1-078 E	1.63
LTF	Y2-004	18.93
LTF	Y2-005	18.93
LTF	Y2-006	10.92
LTF	Y2-007	37.86
LTF	Y2-008	28.49
914011	Y2-010 C OP1	3.96
914012	Y2-010 E OP1	26.5

Appendix 8

Bus Number	Bus Name	Full Contribution
243858	05FR11_C	.08
243859	05FR11_E	13.88
243861	05FR12_C	.08
243862	05FR12_E	13.65
243863	05FR21_C	.09
243864	05FR21_E	14.59
243866	05FRCS22_C	.08
247924	05FRCS22_E	13.97
243870	05FRCS-3_C	.17
247925	05FRCS-3_E	28.29
243873	05FRCS-4_C	.13
247926	05FRCS-4_E	21.27
246908	05MLCS1_C	.19
246909	05MLCS1_E	32.88
246910	05MLCS-2_C	.19
247930	05MLCS-2_E	32.88
292535	CE23CL12	.23
292536	CE23EL12	.94
274670	CRAWF;7G	7.43
274671	CRAWF;7Y	7.5
274672	CRAWF;8U	22.59
274849	CRESC;1U	3.34
294702	CRESC;2U	2.94
274858	EASYR;U2	4.55
274673	FISK ;9U	23.09
990700	FREETPT_G	3.76
299901	K-002 E	3.73
990901	L-005 E	7.24
274850	M HIL;RU	2.96
246536	MOTTVILL	-.09
293061	N-015 E	8.13
293120	N-021 C	.07
293121	N-021 E	.28
293130	N-022 C	.13
293131	N-022 E	.52
293140	N-023 C	.13
293141	N-023 E	.52
293150	N-024 C	.13
293151	N-024 E	.52
293160	N-025 C	.13
293161	N-025 E	.52

293190	O-003 C	.11
293191	O-003 E	.36
293513	O-009 C1	1.2
293514	O-009 C2	.61
293515	O-009 C3	.67
293516	O-009 E1	4.81
293517	O-009 E2	2.44
293518	O-009 E3	2.69
293655	O-023 E	15.46
293715	O-029 E	5.14
293716	O-029 E	2.82
293717	O-029 E	2.59
290007	O-033 E	.94
293771	O-035 E	3.68
290021	O-050 E	10.33
293645	O22E	15.46
294392	P-010 E	10.32
294401	P-011 E1	4.84
294410	P-011 E2	4.84
290051	P-014 E	3.76
295103	P-024 C	.23
295104	P-024 E	.93
295106	P-025 C	.23
295107	P-025 E	.93
290053	P-026 E	.94
294670	P-037 C	1.65
294671	P-037 E	6.61
294700	P-040 C	.25
294701	P-040 E	.98
294763	P-046 E	4.69
290089	Q-039 C	1.78
290090	Q-039 E	4.57
290108	Q-057 E	11.33
882311	Q-066	.15
882331	Q-067B	.22
295990	R-016 C1	.74
295992	R-016 C2	.74
295991	R-016 E1	2.96
295993	R-016 E2	2.96
296827	R-079 C1	1.98
296741	R-079 C2	1.98
296828	R-079 E1	7.9
296740	R-079 E2	7.9
290294	S-036 C1	2.6

290295	S-036 E1	10.39
290298	S-037 C1	2.6
290299	S-037 E1	10.39
884891	S-062 C1	2.34
884901	S-062 C2	2.32
884911	S-062 C3	2.34
884892	S-062 E1	9.35
884902	S-062 E2	9.36
884912	S-062 E3	9.35
274679	SLINE;3U	14.22
274680	SLINE;4U	23.5
885861	T-074 1	.49
885862	T-074 2	.49
885961	T-099 C	1.19
885962	T-099 E	4.74
292416	T-127 C	.19
292417	T-127 E	32.92
886211	T-143 C1	1.55
886221	T-143 C2	1.55
886212	T-143 E1	6.22
886222	T-143 E2	6.22
886261	T-148 C	1.19
886262	T-148 E	4.74
292735	T-183 C	8.23
292736	T-183 E	32.92
292741	T-184 C	8.23
292742	T-184 E	32.92
274861	TCROP;1U	6.57
274862	TCROP;2U	12.76
887641	U1-049 C	.97
887642	U1-049 E	6.46
887741	U1-087 C	3.46
887742	U1-087 E	23.13
887751	U1-088 C	2.3
887752	U1-088 E	15.42
890511	U3-021 1	3.
890521	U3-021 2	3.
891021	U4-003 C	5.35
891022	U4-003 E	35.8
891131	U4-027	5.99
891171	U4-033	.1
274814	UPNOR;0U	.12
274805	UPNOR;1U	.12
274806	UPNOR;2U	.12

274807	UPNOR;3U	.12
274808	UPNOR;4U	.12
274809	UPNOR;5U	.12
274810	UPNOR;6U	.12
274811	UPNOR;7U	.12
274812	UPNOR;8U	.12
274813	UPNOR;9U	.12
274815	UPNOR;XU	.12
274816	UPNOR;YU	.12
892051	V1-022 1	11.69
892061	V1-022 2	11.69
LTF	V3-012	16.98
900371	V4-046	1.17
900381	V4-047	1.17
LTF	W2-033	24.26
902491	W2-079 C	.44
902492	W2-079 E	.71
903432	W3-046	3.48
903442	W3-046	3.22
903452	W3-046	3.48
903462	W3-046	3.22
LTF	W3-083	8.58
903791	W3-132 C	.44
903792	W3-132 E	.71
905252	W4-033 E1	.32
905262	W4-033 E2	.11
905471	W4-084	.23
905491	W4-086	.14
905501	W4-087	.26
907141	X1-045	.18
907361	X1-087	1.12
907432	X1-099 E	.25
909041	X2-019 C	10.93
LTF	X2-042	31.87
909181	X2-052	267.99
910541	X3-005 C	.27
910542	X3-005 E	.43
LTF	X3-020	11.16
910711	X3-045 1	.98
910721	X3-045 2	1.02
LTF	X3-096	26.85
LTF	X3-097	38.07
LTF	X3-098	36.08
LTF	X4-029D	10.57

LTF	X4-041	35.65
LTF	Y1-002	56.51
LTF	Y1-004	16.34
913011	Y1-005 1	12.06
913021	Y1-005 2	12.06
LTF	Y1-007	11.35
LTF	Y1-041	10.57
913522	Y1-078 E	1.42
LTF	Y2-004	18.57
LTF	Y2-005	18.57
LTF	Y2-006	12.99
LTF	Y2-007	37.15
LTF	Y2-008	32.79
914011	Y2-010 C OP1	3.92
914012	Y2-010 E OP1	26.22

Appendix 9

Bus Number	Bus Name	Full Contribution
243858	05FR11_C	.05
243859	05FR11_E	8.72
243861	05FR12_C	.05
243862	05FR12_E	8.57
243863	05FR21_C	.05
243864	05FR21_E	9.16
243866	05FRCS22_C	.05
247924	05FRCS22_E	8.77
243870	05FRCS-3_C	.11
247925	05FRCS-3_E	17.77
243873	05FRCS-4_C	.08
247926	05FRCS-4_E	13.36
246908	05MLCS1_C	.12
246909	05MLCS1_E	20.69
246910	05MLCS-2_C	.12
247930	05MLCS-2_E	20.69
274654	BRAID;1U	2.97
274655	BRAID;2U	2.91
274865	CAYUG;1U C1	2.73
274863	CAYUG;1U E1	10.93
274866	CAYUG;2U C2	2.73
274864	CAYUG;2U E2	10.93
292535	CE23CL12	.38
292536	CE23EL12	1.5
274670	CRAWF;7G	10.94
274671	CRAWF;7Y	10.99
274672	CRAWF;8U	32.9
274849	CRESC;1U	4.95
294702	CRESC;2U	4.36
274751	CRETE;1U	.2
274752	CRETE;2U	.2
274753	CRETE;3U	.2
274754	CRETE;4U	.2
274858	EASYR;U2	17.23
274673	FISK ;9U	33.58
274826	FISK ;BP	.24
274827	FISK ;RP	.18
990700	FREEPT_G	5.89
299901	K-002 E	5.82
274660	LASCO;1U	2.78
274661	LASCO;2U	2.78

274850	M HIL;RU	4.73
293061	N-015 E	12.32
293120	N-021 C	.11
293121	N-021 E	.45
293130	N-022 C	.21
293131	N-022 E	.83
293140	N-023 C	.21
293141	N-023 E	.83
293150	N-024 C	.21
293151	N-024 E	.83
293160	N-025 C	.21
293161	N-025 E	.83
293190	O-003 C	.17
293191	O-003 E	.58
293513	O-009 C1	.35
293514	O-009 C2	.18
293515	O-009 C3	.19
293516	O-009 E1	1.39
293517	O-009 E2	.71
293518	O-009 E3	.78
293540	O-012 C	.05
293655	O-023 E	24.04
293715	O-029 E	7.82
293716	O-029 E	4.29
293717	O-029 E	3.94
290007	O-033 E	1.5
293771	O-035 E	5.45
290021	O-050 E	15.93
293645	O22E	24.04
294392	P-010 E	15.64
294401	P-011 E1	7.17
294410	P-011 E2	7.17
290051	P-014 E	6.01
294500	P-020 C	3.76
294502	P-020 E	15.03
295103	P-024 C	.36
295104	P-024 E	1.44
295106	P-025 C	.36
295107	P-025 E	1.44
290053	P-026 E	1.5
294670	P-037 C	2.5
294671	P-037 E	10.
294700	P-040 C	.36
294701	P-040 E	1.45

294763	P-046 E	7.36
290089	Q-039 C	2.63
290090	Q-039 E	6.77
290108	Q-057 E	18.29
882311	Q-066	.22
882331	Q-067B	.35
295990	R-016 C1	1.16
295992	R-016 C2	1.16
295991	R-016 E1	4.63
295993	R-016 E2	4.63
296827	R-079 C1	2.96
296741	R-079 C2	2.96
296828	R-079 E1	11.86
296740	R-079 E2	11.86
290294	S-036 C1	3.67
290295	S-036 E1	14.7
290298	S-037 C1	3.67
290299	S-037 E1	14.7
884780	S-058 C	70.39
884781	S-058 E	232.07
884891	S-062 C1	3.5
884901	S-062 C2	3.48
884911	S-062 C3	3.5
884892	S-062 E1	14.01
884902	S-062 E2	14.03
884912	S-062 E3	14.01
274679	SLINE;3U	19.9
274680	SLINE;4U	32.27
885861	T-074 1	.79
885862	T-074 2	.79
885961	T-099 C	1.87
885962	T-099 E	7.48
886001	T-105 C	6.38
886002	T-105 E	25.51
292416	T-127 C	.12
292417	T-127 E	20.72
886211	T-143 C1	2.31
886221	T-143 C2	2.31
886212	T-143 E1	9.23
886222	T-143 E2	9.23
886261	T-148 C	1.87
886262	T-148 E	7.48
292735	T-183 C	5.18
292736	T-183 E	20.72

292741	T-184 C	5.18
292742	T-184 E	20.72
274861	TCROP;1U	10.22
274862	TCROP;2U	19.83
274798	U PAR;1U	.12
274799	U PAR;2U	.12
274800	U PAR;3U	.12
274801	U PAR;4U	.12
274802	U PAR;5U	.13
274803	U PAR;6U	.13
887641	U1-049 C	1.36
887642	U1-049 E	9.13
887741	U1-087 C	2.17
887742	U1-087 E	14.53
887751	U1-088 C	1.45
887752	U1-088 E	9.69
890511	U3-021 1	4.75
890521	U3-021 2	4.75
890570	U3-026 C1	24.74
890571	U3-026 C2	24.74
891021	U4-003 C	3.37
891022	U4-003 E	22.53
891131	U4-027	8.95
891171	U4-033	.11
274814	UPNOR;0U	.13
274805	UPNOR;1U	.13
274806	UPNOR;2U	.13
274807	UPNOR;3U	.13
274808	UPNOR;4U	.13
274809	UPNOR;5U	.13
274810	UPNOR;6U	.13
274811	UPNOR;7U	.13
274812	UPNOR;8U	.13
274813	UPNOR;9U	.13
274815	UPNOR;XU	.13
274816	UPNOR;YU	.13
892051	V1-022 1	19.53
892061	V1-022 2	19.53
292068	V1-024	.05
292069	V1-025	.05
LTF	V3-012	14.52
900371	V4-046	1.84
900381	V4-047	1.84
900391	V4-048	.05

900401	V4-049	.05
LTF	W2-033	21.46
902491	W2-079 C	.69
902492	W2-079 E	1.12
903432	W3-046	5.41
903442	W3-046	5.01
903452	W3-046	5.41
903462	W3-046	5.01
LTF	W3-083	12.68
903791	W3-132 C	.69
903792	W3-132 E	1.12
905252	W4-033 E1	.48
905262	W4-033 E2	.16
905471	W4-084	.35
905491	W4-086	.21
905501	W4-087	.38
907141	X1-045	.3
907361	X1-087	1.76
907432	X1-099 E	.38
909041	X2-019 C	17.47
LTF	X2-042	17.28
909181	X2-052	103.05
910541	X3-005 C	.39
910542	X3-005 E	.63
LTF	X3-020	11.99
910711	X3-045 1	1.62
910721	X3-045 2	1.59
LTF	X3-096	28.83
LTF	X3-097	40.89
LTF	X3-098	38.76
LTF	X4-029D	16.35
LTF	X4-041	38.29
LTF	Y1-002	64.82
LTF	Y1-004	11.94
913011	Y1-005 1	18.3
913021	Y1-005 2	18.3
LTF	Y1-007	8.29
LTF	Y1-041	16.35
913522	Y1-078 E	2.07
LTF	Y2-004	20.04
LTF	Y2-005	20.04
LTF	Y2-007	40.07
LTF	Y2-008	18.52
914011	Y2-010 C OP1	2.46

914012	Y2-010 E OP1	16.49
--------	--------------	-------

Appendix 10

Bus Number	Bus Name	Full Contribution
243858	05FR11_C	.07
243859	05FR11_E	12.33
243861	05FR12_C	.07
243862	05FR12_E	12.13
243863	05FR21_C	.08
243864	05FR21_E	12.96
243866	05FRCS22_C	.07
247924	05FRCS22_E	12.41
243870	05FRCS-3_C	.15
247925	05FRCS-3_E	25.14
243873	05FRCS-4_C	.11
247926	05FRCS-4_E	18.9
246908	05MLCS1_C	.18
246909	05MLCS1_E	29.74
246910	05MLCS-2_C	.18
247930	05MLCS-2_E	29.74
274654	BRAID;1U	2.94
274655	BRAID;2U	2.87
274865	CAYUG;1U C1	2.66
274863	CAYUG;1U E1	10.63
274866	CAYUG;2U C2	2.66
274864	CAYUG;2U E2	10.63
292535	CE23CL12	.37
292536	CE23EL12	1.47
274670	CRAWF;7G	10.42
274671	CRAWF;7Y	10.54
274672	CRAWF;8U	31.23
274849	CRESC;1U	4.86
294702	CRESC;2U	4.29
274751	CRETE;1U	.19
274752	CRETE;2U	.19
274753	CRETE;3U	.19
274754	CRETE;4U	.19
274858	EASYR;U2	16.88
274673	FISK ;9U	31.64
990700	FREEPT_G	5.77
299901	K-002 E	5.7
990901	L-005 E	10.46
274660	LASCO;1U	2.74
274661	LASCO;2U	2.74
274850	M HIL;RU	4.63

274847	N-015 C	.07
293061	N-015 E	12.12
293120	N-021 C	.11
293121	N-021 E	.44
293130	N-022 C	.2
293131	N-022 E	.81
293140	N-023 C	.2
293141	N-023 E	.81
293150	N-024 C	.2
293151	N-024 E	.81
293160	N-025 C	.2
293161	N-025 E	.81
293190	O-003 C	.17
293191	O-003 E	.57
293513	O-009 C1	1.79
293514	O-009 C2	.91
293515	O-009 C3	1.
293516	O-009 E1	7.18
293517	O-009 E2	3.64
293518	O-009 E3	4.01
293655	O-023 E	23.37
293665	O-024 E	.21
293667	O-024 E	.41
293715	O-029 E	7.67
293716	O-029 E	4.21
293717	O-029 E	3.87
290007	O-033 E	1.47
293771	O-035 E	5.36
290021	O-050 E	15.5
293645	O22E	23.37
294391	P-010 C	.09
294392	P-010 E	15.39
294401	P-011 E1	7.04
294410	P-011 E2	7.04
290051	P-014 E	5.88
294500	P-020 C	3.68
294502	P-020 E	14.72
295103	P-024 C	.35
295104	P-024 E	1.41
295106	P-025 C	.35
295107	P-025 E	1.41
290053	P-026 E	1.47
294670	P-037 C	2.45
294671	P-037 E	9.81

294700	P-040 C	.36
294701	P-040 E	1.43
294763	P-046 E	7.21
290089	Q-039 C	2.59
290090	Q-039 E	6.65
290108	Q-057 E	17.89
882311	Q-066	.2
882331	Q-067B	.34
295990	R-016 C1	1.14
295992	R-016 C2	1.14
295991	R-016 E1	4.54
295993	R-016 E2	4.54
296308	R-030 C1	2.88
296271	R-030 C2	2.88
296125	R-030 C3	2.91
296309	R-030 E1	11.52
296272	R-030 E2	11.52
296128	R-030 E3	11.66
296827	R-079 C1	2.89
296741	R-079 C2	2.89
296828	R-079 E1	11.54
296740	R-079 E2	11.54
290294	S-036 C1	3.54
290295	S-036 E1	14.15
290298	S-037 C1	3.54
290299	S-037 E1	14.15
884780	S-058 C	68.36
884781	S-058 E	225.38
884891	S-062 C1	3.45
884901	S-062 C2	3.43
884911	S-062 C3	3.45
884892	S-062 E1	13.81
884902	S-062 E2	13.83
884912	S-062 E3	13.81
274680	SLINE;4U	27.95
885861	T-074 1	.77
885862	T-074 2	.77
885961	T-099 C	1.83
885962	T-099 E	7.33
886001	T-105 C	6.2
886002	T-105 E	24.8
292416	T-127 C	.18
292417	T-127 E	29.78
886211	T-143 C1	2.27

886221	T-143 C2	2.27
886212	T-143 E1	9.07
886222	T-143 E2	9.07
886261	T-148 C	1.83
886262	T-148 E	7.33
292735	T-183 C	7.45
292736	T-183 E	29.78
292741	T-184 C	7.45
292742	T-184 E	29.78
274861	TCROP;1U	9.93
274862	TCROP;2U	19.28
274802	U PAR;5U	.13
274803	U PAR;6U	.13
887641	U1-049 C	1.31
887642	U1-049 E	8.79
887741	U1-087 C	3.07
887742	U1-087 E	20.55
887751	U1-088 C	2.05
887752	U1-088 E	13.7
890511	U3-021 1	4.65
890521	U3-021 2	4.65
890570	U3-026 C1	24.02
890571	U3-026 C2	24.02
891021	U4-003 C	4.84
891022	U4-003 E	32.39
891131	U4-027	8.79
891171	U4-033	.12
274814	UPNOR;0U	.14
274805	UPNOR;1U	.14
274806	UPNOR;2U	.14
274807	UPNOR;3U	.14
274808	UPNOR;4U	.14
274809	UPNOR;5U	.14
274810	UPNOR;6U	.14
274811	UPNOR;7U	.14
274812	UPNOR;8U	.14
274813	UPNOR;9U	.14
274815	UPNOR;XU	.14
274816	UPNOR;YU	.14
892051	V1-022 1	19.17
892061	V1-022 2	19.17
292068	V1-024	.05
292069	V1-025	.05
LTF	V3-012	12.26

900371	V4-046	1.8
900381	V4-047	1.8
900391	V4-048	.05
900401	V4-049	.05
902491	W2-079 C	.67
902492	W2-079 E	1.1
903432	W3-046	5.26
903442	W3-046	4.87
903452	W3-046	5.26
903462	W3-046	4.87
LTF	W3-083	12.43
903791	W3-132 C	.68
903792	W3-132 E	1.1
903801	W3-134	.03
905261	W4-033 C2	.
905252	W4-033 E1	.46
905262	W4-033 E2	.16
905471	W4-084	.35
905491	W4-086	.21
905501	W4-087	.34
274686	WILL ;3U	.59
907141	X1-045	.3
907361	X1-087	1.73
907432	X1-099 E	.37
909041	X2-019 C	17.09
LTF	X2-042	17.5
910541	X3-005 C	.35
910542	X3-005 E	.57
LTF	X3-020	11.93
910711	X3-045 1	1.58
910721	X3-045 2	1.55
LTF	X3-096	28.69
LTF	X3-097	40.69
LTF	X3-098	38.56
LTF	X4-029D	16.1
LTF	X4-041	38.1
LTF	Y1-002	50.72
LTF	Y1-004	8.74
913011	Y1-005 1	18.03
913021	Y1-005 2	18.03
LTF	Y1-041	16.1
913522	Y1-078 E	1.96
LTF	Y2-004	20.01
LTF	Y2-005	20.01

LTF	Y2-007	40.03
LTF	Y2-008	18.53
914011	Y2-010 C OP1	3.67
914012	Y2-010 E OP1	24.53

Appendix 11

Bus Number	Bus Name	Full Contribution
243858	05FR11_C	.07
243859	05FR11_E	12.33
243861	05FR12_C	.07
243862	05FR12_E	12.13
243863	05FR21_C	.08
243864	05FR21_E	12.96
243866	05FRCS22_C	.07
247924	05FRCS22_E	12.41
243870	05FRCS-3_C	.15
247925	05FRCS-3_E	25.14
243873	05FRCS-4_C	.11
247926	05FRCS-4_E	18.9
246908	05MLCS1_C	.18
246909	05MLCS1_E	29.74
246910	05MLCS-2_C	.18
247930	05MLCS-2_E	29.74
274654	BRAID;1U	2.94
274655	BRAID;2U	2.87
274865	CAYUG;1U C1	2.66
274863	CAYUG;1U E1	10.63
274866	CAYUG;2U C2	2.66
274864	CAYUG;2U E2	10.63
292535	CE23CL12	.37
292536	CE23EL12	1.47
274670	CRAWF;7G	10.42
274671	CRAWF;7Y	10.54
274672	CRAWF;8U	31.23
274849	CRESC;1U	4.86
294702	CRESC;2U	4.29
274751	CRETE;1U	.19
274752	CRETE;2U	.19
274753	CRETE;3U	.19
274754	CRETE;4U	.19
274858	EASYR;U2	16.88
274673	FISK ;9U	31.64
990700	FREEPT_G	5.77
299901	K-002 E	5.7
990901	L-005 E	10.46
274660	LASCO;1U	2.74
274661	LASCO;2U	2.74
274850	M HIL;RU	4.63

274847	N-015 C	.07
293061	N-015 E	12.12
293120	N-021 C	.11
293121	N-021 E	.44
293130	N-022 C	.2
293131	N-022 E	.81
293140	N-023 C	.2
293141	N-023 E	.81
293150	N-024 C	.2
293151	N-024 E	.81
293160	N-025 C	.2
293161	N-025 E	.81
293190	O-003 C	.17
293191	O-003 E	.57
293513	O-009 C1	1.79
293514	O-009 C2	.91
293515	O-009 C3	1.
293516	O-009 E1	7.18
293517	O-009 E2	3.64
293518	O-009 E3	4.01
293655	O-023 E	23.38
293665	O-024 E	.21
293667	O-024 E	.41
293715	O-029 E	7.67
293716	O-029 E	4.21
293717	O-029 E	3.87
290007	O-033 E	1.47
293771	O-035 E	5.36
290021	O-050 E	15.5
293645	O22E	23.38
294391	P-010 C	.09
294392	P-010 E	15.39
294401	P-011 E1	7.04
294410	P-011 E2	7.04
290051	P-014 E	5.88
294500	P-020 C	3.68
294502	P-020 E	14.72
295103	P-024 C	.35
295104	P-024 E	1.41
295106	P-025 C	.35
295107	P-025 E	1.41
290053	P-026 E	1.47
294670	P-037 C	2.45
294671	P-037 E	9.81

294700	P-040 C	.36
294701	P-040 E	1.43
294763	P-046 E	7.21
290089	Q-039 C	2.59
290090	Q-039 E	6.65
290108	Q-057 E	17.89
882311	Q-066	.2
882331	Q-067B	.34
295990	R-016 C1	1.14
295992	R-016 C2	1.14
295991	R-016 E1	4.54
295993	R-016 E2	4.54
296308	R-030 C1	2.88
296271	R-030 C2	2.88
296125	R-030 C3	2.91
296309	R-030 E1	11.52
296272	R-030 E2	11.52
296128	R-030 E3	11.66
296827	R-079 C1	2.89
296741	R-079 C2	2.89
296828	R-079 E1	11.54
296740	R-079 E2	11.54
290294	S-036 C1	3.54
290295	S-036 E1	14.15
290298	S-037 C1	3.54
290299	S-037 E1	14.15
884780	S-058 C	68.38
884781	S-058 E	225.45
884891	S-062 C1	3.45
884901	S-062 C2	3.43
884911	S-062 C3	3.45
884892	S-062 E1	13.81
884902	S-062 E2	13.83
884912	S-062 E3	13.81
274680	SLINE;4U	27.95
885861	T-074 1	.77
885862	T-074 2	.77
885961	T-099 C	1.83
885962	T-099 E	7.33
886001	T-105 C	6.2
886002	T-105 E	24.8
292416	T-127 C	.18
292417	T-127 E	29.78
886211	T-143 C1	2.27

886221	T-143 C2	2.27
886212	T-143 E1	9.07
886222	T-143 E2	9.07
886261	T-148 C	1.83
886262	T-148 E	7.33
292735	T-183 C	7.45
292736	T-183 E	29.78
292741	T-184 C	7.45
292742	T-184 E	29.78
274861	TCROP;1U	9.93
274862	TCROP;2U	19.29
274802	U PAR;5U	.13
274803	U PAR;6U	.13
887641	U1-049 C	1.31
887642	U1-049 E	8.79
887741	U1-087 C	3.07
887742	U1-087 E	20.55
887751	U1-088 C	2.05
887752	U1-088 E	13.7
890511	U3-021 1	4.65
890521	U3-021 2	4.65
890570	U3-026 C1	24.03
890571	U3-026 C2	24.03
891021	U4-003 C	4.84
891022	U4-003 E	32.39
891131	U4-027	8.79
891171	U4-033	.12
274814	UPNOR;0U	.14
274805	UPNOR;1U	.14
274806	UPNOR;2U	.14
274807	UPNOR;3U	.14
274808	UPNOR;4U	.14
274809	UPNOR;5U	.14
274810	UPNOR;6U	.14
274811	UPNOR;7U	.14
274812	UPNOR;8U	.14
274813	UPNOR;9U	.14
274815	UPNOR;XU	.14
274816	UPNOR;YU	.14
892051	V1-022 1	19.17
892061	V1-022 2	19.17
292068	V1-024	.05
292069	V1-025	.05
LTF	V3-012	12.26

900371	V4-046	1.8
900381	V4-047	1.8
900391	V4-048	.05
900401	V4-049	.05
902491	W2-079 C	.67
902492	W2-079 E	1.1
903432	W3-046	5.26
903442	W3-046	4.87
903452	W3-046	5.26
903462	W3-046	4.87
LTF	W3-083	12.43
903791	W3-132 C	.68
903792	W3-132 E	1.1
903801	W3-134	.03
905261	W4-033 C2	.
905252	W4-033 E1	.46
905262	W4-033 E2	.16
905471	W4-084	.35
905491	W4-086	.21
905501	W4-087	.34
274686	WILL ;3U	.59
907141	X1-045	.3
907361	X1-087	1.73
907432	X1-099 E	.37
909041	X2-019 C	17.09
LTF	X2-042	17.5
910541	X3-005 C	.35
910542	X3-005 E	.57
LTF	X3-020	11.93
910711	X3-045 1	1.58
910721	X3-045 2	1.55
LTF	X3-096	28.69
LTF	X3-097	40.69
LTF	X3-098	38.56
LTF	X4-029D	16.1
LTF	X4-041	38.1
LTF	Y1-002	50.72
LTF	Y1-004	8.74
913011	Y1-005 1	18.03
913021	Y1-005 2	18.03
LTF	Y1-041	16.1
913522	Y1-078 E	1.96
LTF	Y2-004	20.01
LTF	Y2-005	20.01

LTF	Y2-007	40.03
LTF	Y2-008	18.53
914011	Y2-010 C OP1	3.67
914012	Y2-010 E OP1	24.53

Appendix 12

Bus Number	Bus Name	Full Contribution
243858	05FR11_C	.1
243859	05FR11_E	17.13
243861	05FR12_C	.1
243862	05FR12_E	16.84
243863	05FR21_C	.11
243864	05FR21_E	18.
243866	05FRCS22_C	.1
247924	05FRCS22_E	17.24
243870	05FRCS-3_C	.21
247925	05FRCS-3_E	34.91
243873	05FRCS-4_C	.16
247926	05FRCS-4_E	26.25
246908	05MLCS1_C	.24
246909	05MLCS1_E	41.11
246910	05MLCS-2_C	.24
247930	05MLCS-2_E	41.11
246431	BUCHANAN	.42
292535	CE23CL12	.26
292536	CE23EL12	1.05
274670	CRAWF;7G	8.3
274671	CRAWF;7Y	8.39
274672	CRAWF;8U	25.21
274849	CRESC;1U	3.72
294702	CRESC;2U	3.28
274751	CRETE;1U	.2
274752	CRETE;2U	.2
274753	CRETE;3U	.2
274754	CRETE;4U	.2
274858	EASYR;U2	12.34
274673	FISK ;9U	25.68
990700	FREEPT_G	4.19
299901	K-002 E	4.15
990901	L-005 E	8.04
274850	M HIL;RU	3.29
293061	N-015 E	9.14
293120	N-021 C	.08
293121	N-021 E	.31
293130	N-022 C	.14
293131	N-022 E	.58
293140	N-023 C	.14
293141	N-023 E	.58

293150	N-024 C	.14
293151	N-024 E	.58
293160	N-025 C	.14
293161	N-025 E	.58
293190	O-003 C	.12
293191	O-003 E	.41
293513	O-009 C1	1.33
293514	O-009 C2	.68
293515	O-009 C3	.75
293516	O-009 E1	5.34
293517	O-009 E2	2.71
293518	O-009 E3	2.99
293655	O-023 E	17.29
293715	O-029 E	5.71
293716	O-029 E	3.13
293717	O-029 E	2.88
290007	O-033 E	1.05
293771	O-035 E	4.1
290021	O-050 E	11.55
293645	O22E	17.29
294392	P-010 E	11.6
294401	P-011 E1	5.38
294410	P-011 E2	5.38
290051	P-014 E	4.18
294500	P-020 C	2.68
294502	P-020 E	10.74
295103	P-024 C	.26
295104	P-024 E	1.03
295106	P-025 C	.26
295107	P-025 E	1.03
290053	P-026 E	1.05
294670	P-037 C	1.84
294671	P-037 E	7.34
294700	P-040 C	.27
294701	P-040 E	1.09
294763	P-046 E	5.23
290089	Q-039 C	1.98
290090	Q-039 E	5.08
290108	Q-057 E	12.61
882311	Q-066	.17
882331	Q-067B	.25
295990	R-016 C1	.82
295992	R-016 C2	.82
295991	R-016 E1	3.3

295993	R-016 E2	3.3
296335	R-033 1	2.51
296336	R-033 2	2.51
296346	R-033 3	1.81
296348	R-033 4	1.81
296827	R-079 C1	2.21
296741	R-079 C2	2.21
296828	R-079 E1	8.85
296740	R-079 E2	8.85
290294	S-036 C1	2.93
290295	S-036 E1	11.7
290298	S-037 C1	2.93
290299	S-037 E1	11.7
884891	S-062 C1	2.65
884901	S-062 C2	2.63
884911	S-062 C3	2.65
884892	S-062 E1	10.59
884902	S-062 E2	10.6
884912	S-062 E3	10.59
274679	SLINE;3U	15.28
274680	SLINE;4U	25.48
885861	T-074 1	.54
885862	T-074 2	.54
885961	T-099 C	1.32
885962	T-099 E	5.29
292416	T-127 C	.24
292417	T-127 E	41.16
886211	T-143 C1	1.74
886221	T-143 C2	1.74
886212	T-143 E1	6.95
886222	T-143 E2	6.95
886261	T-148 C	1.32
886262	T-148 E	5.29
292735	T-183 C	10.29
292736	T-183 E	41.16
292741	T-184 C	10.29
292742	T-184 E	41.16
274861	TCROP;1U	7.35
274862	TCROP;2U	14.27
274802	U PAR;5U	.12
274803	U PAR;6U	.12
887641	U1-049 C	1.09
887642	U1-049 E	7.27
887741	U1-087 C	4.27

887742	U1-087 E	28.54
887751	U1-088 C	2.84
887752	U1-088 E	19.03
890511	U3-021 1	3.35
890521	U3-021 2	3.35
891021	U4-003 C	6.69
891022	U4-003 E	44.76
891131	U4-027	6.66
891171	U4-033	.12
274814	UPNOR;0U	.15
274805	UPNOR;1U	.15
274806	UPNOR;2U	.15
274807	UPNOR;3U	.15
274808	UPNOR;4U	.15
274809	UPNOR;5U	.15
274810	UPNOR;6U	.15
274811	UPNOR;7U	.15
274812	UPNOR;8U	.15
274813	UPNOR;9U	.15
274815	UPNOR;XU	.15
274816	UPNOR;YU	.15
892051	V1-022 1	13.1
892061	V1-022 2	13.1
LTF	V3-012	15.22
900371	V4-046	1.31
900381	V4-047	1.31
LTF	W2-033	8.6
902491	W2-079 C	.49
902492	W2-079 E	.79
903432	W3-046	3.89
903442	W3-046	3.6
903452	W3-046	3.89
903462	W3-046	3.6
LTF	W3-083	9.57
903791	W3-132 C	.49
903792	W3-132 E	.79
905252	W4-033 E1	.36
905262	W4-033 E2	.12
905471	W4-084	.25
905491	W4-086	.15
905501	W4-087	.29
907141	X1-045	.2
907361	X1-087	1.25
907432	X1-099 E	.28

909041	X2-019 C	12.22
LTF	X2-042	30.6
909181	X2-052	463.13
910541	X3-005 C	.29
910542	X3-005 E	.47
LTF	X3-020	11.68
910711	X3-045 1	1.09
910721	X3-045 2	1.14
LTF	X3-096	28.1
LTF	X3-097	39.85
LTF	X3-098	37.77
LTF	X4-029D	11.8
LTF	X4-041	37.32
LTF	Y1-002	60.72
LTF	Y1-004	13.42
913011	Y1-005 1	13.64
913021	Y1-005 2	13.64
LTF	Y1-007	9.32
LTF	Y1-041	11.8
913522	Y1-078 E	1.59
LTF	Y2-004	19.52
LTF	Y2-005	19.52
LTF	Y2-006	11.58
LTF	Y2-007	39.04
LTF	Y2-008	31.49
914011	Y2-010 C OP1	5.02
914012	Y2-010 E OP1	33.63

Appendix 13

Bus Number	Bus Name	Full Contribution
243858	05FR11_C	.12
243859	05FR11_E	20.07
243861	05FR12_C	.12
243862	05FR12_E	19.73
243863	05FR21_C	.12
243864	05FR21_E	21.09
243866	05FRCS22_C	.12
247924	05FRCS22_E	20.19
243870	05FRCS-3_C	.24
247925	05FRCS-3_E	40.9
243873	05FRCS-4_C	.18
247926	05FRCS-4_E	30.75
246908	05MLCS1_C	.28
246909	05MLCS1_E	48.14
246910	05MLCS-2_C	.28
247930	05MLCS-2_E	48.14
292535	CE23CL12	.29
292536	CE23EL12	1.15
274670	CRAWF;7G	8.93
274671	CRAWF;7Y	9.07
274672	CRAWF;8U	27.07
274849	CRESC;1U	4.1
294702	CRESC;2U	3.61
274751	CRETE;1U	.22
274752	CRETE;2U	.22
274753	CRETE;3U	.22
274754	CRETE;4U	.22
274858	EASYR;U2	13.6
274673	FISK ;9U	27.47
990700	FREETPT_G	4.61
299901	K-002 E	4.57
990901	L-005 E	8.88
274850	M HIL;RU	3.63
293061	N-015 E	10.06
293120	N-021 C	.09
293121	N-021 E	.35
293130	N-022 C	.16
293131	N-022 E	.63
293140	N-023 C	.16
293141	N-023 E	.63
293150	N-024 C	.16

293151	N-024 E	.63
293160	N-025 C	.16
293161	N-025 E	.63
293190	O-003 C	.13
293191	O-003 E	.45
293513	O-009 C1	1.47
293514	O-009 C2	.75
293515	O-009 C3	.82
293516	O-009 E1	5.89
293517	O-009 E2	2.99
293518	O-009 E3	3.3
293655	O-023 E	18.9
293715	O-029 E	6.3
293716	O-029 E	3.45
293717	O-029 E	3.17
290007	O-033 E	1.15
293771	O-035 E	4.51
290021	O-050 E	12.63
293645	O22E	18.9
294392	P-010 E	12.78
294401	P-011 E1	5.93
294410	P-011 E2	5.93
290051	P-014 E	4.61
294500	P-020 C	2.96
294502	P-020 E	11.84
295103	P-024 C	.28
295104	P-024 E	1.13
295106	P-025 C	.28
295107	P-025 E	1.13
290053	P-026 E	1.15
294670	P-037 C	2.03
294671	P-037 E	8.1
294700	P-040 C	.3
294701	P-040 E	1.2
294763	P-046 E	5.76
290089	Q-039 C	2.18
290090	Q-039 E	5.61
290108	Q-057 E	13.88
882311	Q-066	.18
882331	Q-067B	.27
295990	R-016 C1	.91
295992	R-016 C2	.91
295991	R-016 E1	3.63
295993	R-016 E2	3.63

296335	R-033 1	12.19
296336	R-033 2	12.19
296346	R-033 3	8.83
296348	R-033 4	8.83
296827	R-079 C1	2.42
296741	R-079 C2	2.42
296828	R-079 E1	9.66
296740	R-079 E2	9.66
290294	S-036 C1	3.16
290295	S-036 E1	12.62
290298	S-037 C1	3.16
290299	S-037 E1	12.62
884891	S-062 C1	2.9
884901	S-062 C2	2.88
884911	S-062 C3	2.9
884892	S-062 E1	11.61
884902	S-062 E2	11.62
884912	S-062 E3	11.61
274679	SLINE;3U	14.9
274680	SLINE;4U	24.71
885861	T-074 1	.6
885862	T-074 2	.6
885961	T-099 C	1.45
885962	T-099 E	5.82
292416	T-127 C	.28
292417	T-127 E	48.2
886211	T-143 C1	1.91
886221	T-143 C2	1.91
886212	T-143 E1	7.64
886222	T-143 E2	7.64
886261	T-148 C	1.45
886262	T-148 E	5.82
292735	T-183 C	12.05
292736	T-183 E	48.2
292741	T-184 C	12.05
292742	T-184 E	48.2
274861	TCROP;1U	8.03
274862	TCROP;2U	15.59
246416	TWBRANCH	-.35
274853	TWING;U1	2.84
274854	TWING;U2	2.84
274802	U PAR;5U	.13
274803	U PAR;6U	.13
887641	U1-049 C	1.17

887642	U1-049 E	7.84
887741	U1-087 C	5.
887742	U1-087 E	33.44
887751	U1-088 C	3.33
887752	U1-088 E	22.3
890511	U3-021 1	3.68
890521	U3-021 2	3.68
891021	U4-003 C	7.83
891022	U4-003 E	52.42
891131	U4-027	7.35
891171	U4-033	.14
891211	U4-037 C	1.82
891212	U4-037 E	12.19
274814	UPNOR;0U	.16
274805	UPNOR;1U	.16
274806	UPNOR;2U	.16
274807	UPNOR;3U	.16
274808	UPNOR;4U	.16
274809	UPNOR;5U	.16
274810	UPNOR;6U	.16
274811	UPNOR;7U	.16
274812	UPNOR;8U	.16
274813	UPNOR;9U	.16
274815	UPNOR;XU	.16
274816	UPNOR;YU	.16
892051	V1-022 1	14.44
892061	V1-022 2	14.44
LTF	V3-012	18.11
900371	V4-046	1.44
900381	V4-047	1.44
LTF	W2-033	13.57
902352	W2-048 E	4.36
902491	W2-079 C	.53
902492	W2-079 E	.87
903432	W3-046	4.25
903442	W3-046	3.94
903452	W3-046	4.25
903462	W3-046	3.94
LTF	W3-083	10.52
903791	W3-132 C	.54
903792	W3-132 E	.87
905071	W4-005 C	3.2
905072	W4-005 E	21.44
905252	W4-033 E1	.39

905262	W4-033 E2	.13
905471	W4-084	.28
905491	W4-086	.17
905501	W4-087	.3
907141	X1-045	.22
907361	X1-087	1.37
907432	X1-099 E	.31
909041	X2-019 C	13.41
909062	X2-022 E OP1	13.17
LTF	X2-042	36.77
910541	X3-005 C	.3
910542	X3-005 E	.49
LTF	X3-020	13.42
910711	X3-045 1	1.2
910721	X3-045 2	1.25
LTF	X3-096	32.28
LTF	X3-097	45.77
LTF	X3-098	43.39
LTF	X4-029D	12.98
LTF	X4-041	42.87
LTF	Y1-002	55.47
LTF	Y1-004	16.36
913011	Y1-005 1	14.97
913021	Y1-005 2	14.96
LTF	Y1-007	11.36
LTF	Y1-041	12.98
913522	Y1-078 E	1.71
LTF	Y2-004	22.4
LTF	Y2-005	22.4
LTF	Y2-006	14.08
LTF	Y2-007	44.8
LTF	Y2-008	37.81
914011	Y2-010 C OP1	5.89
914012	Y2-010 E OP1	39.4

Appendix 14

Bus Number	Bus Name	Full Contribution
243858	05FR11_C	.12
243859	05FR11_E	19.8
243861	05FR12_C	.12
243862	05FR12_E	19.47
243863	05FR21_C	.12
243864	05FR21_E	20.81
243866	05FRCS22_C	.12
247924	05FRCS22_E	19.93
243870	05FRCS-3_C	.24
247925	05FRCS-3_E	40.36
243873	05FRCS-4_C	.18
247926	05FRCS-4_E	30.35
246908	05MLCS1_C	.28
246909	05MLCS1_E	47.43
246910	05MLCS-2_C	.28
247930	05MLCS-2_E	47.43
246427	BERRIENS	-.36
246431	BUCHANAN	-.22
292416	T-127 C	.28
292417	T-127 E	47.49
292735	T-183 C	11.87
292736	T-183 E	47.49
292741	T-184 C	11.87
292742	T-184 E	47.49
887741	U1-087 C	4.93
887742	U1-087 E	33.
887751	U1-088 C	3.29
887752	U1-088 E	22.
891021	U4-003 C	7.72
891022	U4-003 E	51.65
LTF	V3-012	13.24
LTF	W2-033	11.09
LTF	X2-042	41.
LTF	X3-020	6.01
900404	X3-028 C	212.62
LTF	X3-096	14.46
LTF	X3-097	20.5
LTF	X3-098	19.44
LTF	X4-041	19.2
LTF	Y1-004	15.16
LTF	Y1-007	10.53

LTF	Y2-004	9.91
LTF	Y2-005	9.91
LTF	Y2-006	16.37
LTF	Y2-007	19.82
LTF	Y2-008	40.96
914011	Y2-010 C OP1	3.86
914012	Y2-010 E OP1	25.82

Appendix 15

Bus Number	Bus Name	Full Contribution
243858	05FR11_C	.1
243859	05FR11_E	16.74
243861	05FR12_C	.1
243862	05FR12_E	16.47
243863	05FR21_C	.1
243864	05FR21_E	17.6
243866	05FRCS22_C	.1
247924	05FRCS22_E	16.85
243870	05FRCS-3_C	.2
247925	05FRCS-3_E	34.13
243873	05FRCS-4_C	.15
247926	05FRCS-4_E	25.66
246908	05MLCS1_C	.24
246909	05MLCS1_E	40.02
246910	05MLCS-2_C	.24
247930	05MLCS-2_E	40.02
246427	BERRIENS	-.61
292535	CE23CL12	.29
292536	CE23EL12	1.15
274670	CRAWF;7G	8.89
274671	CRAWF;7Y	8.99
274672	CRAWF;8U	26.93
274849	CRESC;1U	4.04
294702	CRESC;2U	3.56
274751	CRETE;1U	.2
274752	CRETE;2U	.2
274753	CRETE;3U	.2
274754	CRETE;4U	.2
274858	EASYR;U2	13.53
246397	ELKHARTH	-.29
274673	FISK ;9U	27.41
990700	FREETPT_G	4.59
299901	K-002 E	4.55
990901	L-005 E	8.75
274850	M HIL;RU	3.63
246536	MOTTVILL	-.13
293061	N-015 E	9.93
293120	N-021 C	.09
293121	N-021 E	.35
293130	N-022 C	.16
293131	N-022 E	.63

293140	N-023 C	.16
293141	N-023 E	.63
293150	N-024 C	.16
293151	N-024 E	.63
293160	N-025 C	.16
293161	N-025 E	.63
293190	O-003 C	.13
293191	O-003 E	.45
293513	O-009 C1	1.46
293514	O-009 C2	.74
293515	O-009 C3	.82
293516	O-009 E1	5.84
293517	O-009 E2	2.97
293518	O-009 E3	3.27
293655	O-023 E	18.84
293715	O-029 E	6.25
293716	O-029 E	3.42
293717	O-029 E	3.15
290007	O-033 E	1.15
293771	O-035 E	4.45
290021	O-050 E	12.57
293645	O22E	18.84
294392	P-010 E	12.61
294401	P-011 E1	5.85
294410	P-011 E2	5.85
290051	P-014 E	4.61
294500	P-020 C	2.95
294502	P-020 E	11.79
295103	P-024 C	.28
295104	P-024 E	1.13
295106	P-025 C	.28
295107	P-025 E	1.13
290053	P-026 E	1.15
294670	P-037 C	2.01
294671	P-037 E	8.02
294700	P-040 C	.3
294701	P-040 E	1.19
294763	P-046 E	5.73
290089	Q-039 C	2.15
290090	Q-039 E	5.53
290108	Q-057 E	13.91
882311	Q-066	.18
882331	Q-067B	.27
295990	R-016 C1	.9

295992	R-016 C2	.9
295991	R-016 E1	3.61
295993	R-016 E2	3.61
296335	R-033 1	5.55
296336	R-033 2	5.55
296346	R-033 3	4.02
296348	R-033 4	4.02
296827	R-079 C1	2.39
296741	R-079 C2	2.39
296828	R-079 E1	9.57
296740	R-079 E2	9.57
290294	S-036 C1	3.1
290295	S-036 E1	12.42
290298	S-037 C1	3.1
290299	S-037 E1	12.42
884891	S-062 C1	2.85
884901	S-062 C2	2.84
884911	S-062 C3	2.85
884892	S-062 E1	11.42
884902	S-062 E2	11.43
884912	S-062 E3	11.42
274679	SLINE;3U	15.51
274680	SLINE;4U	25.51
885861	T-074 1	.6
885862	T-074 2	.6
885961	T-099 C	1.45
885962	T-099 E	5.8
292416	T-127 C	.24
292417	T-127 E	40.07
886211	T-143 C1	1.88
886221	T-143 C2	1.88
886212	T-143 E1	7.53
886222	T-143 E2	7.53
886261	T-148 C	1.45
886262	T-148 E	5.8
292735	T-183 C	10.02
292736	T-183 E	40.07
292741	T-184 C	10.02
292742	T-184 E	40.07
274861	TCROP;1U	8.01
274862	TCROP;2U	15.54
246416	TWBRANCH	-.35
274802	U PAR;5U	.12
274803	U PAR;6U	.12

887641	U1-049 C	1.15
887642	U1-049 E	7.72
887741	U1-087 C	4.17
887742	U1-087 E	27.91
887751	U1-088 C	2.78
887752	U1-088 E	18.6
890511	U3-021 1	3.67
890521	U3-021 2	3.67
891021	U4-003 C	6.51
891022	U4-003 E	43.57
891131	U4-027	7.26
891171	U4-033	.13
274814	UPNOR;0U	.15
274805	UPNOR;1U	.15
274806	UPNOR;2U	.15
274807	UPNOR;3U	.15
274808	UPNOR;4U	.15
274809	UPNOR;5U	.15
274810	UPNOR;6U	.15
274811	UPNOR;7U	.15
274812	UPNOR;8U	.15
274813	UPNOR;9U	.15
274815	UPNOR;XU	.15
274816	UPNOR;YU	.15
892051	V1-022 1	14.52
892061	V1-022 2	14.52
LTF	V3-012	17.72
900371	V4-046	1.43
900381	V4-047	1.43
LTF	W2-033	22.43
902491	W2-079 C	.53
902492	W2-079 E	.87
903432	W3-046	4.24
903442	W3-046	3.92
903452	W3-046	4.24
903462	W3-046	3.92
LTF	W3-083	10.37
903791	W3-132 C	.53
903792	W3-132 E	.87
905252	W4-033 E1	.38
905262	W4-033 E2	.13
905471	W4-084	.28
905491	W4-086	.17
905501	W4-087	.3

907141	X1-045	.23
907361	X1-087	1.37
907432	X1-099 E	.31
909041	X2-019 C	13.41
LTF	X2-042	32.96
909181	X2-052	335.14
910541	X3-005 C	.31
910542	X3-005 E	.5
LTF	X3-020	12.71
910711	X3-045 1	1.21
910721	X3-045 2	1.24
LTF	X3-096	30.58
LTF	X3-097	43.37
LTF	X3-098	41.1
LTF	X4-029D	12.87
LTF	X4-041	40.61
LTF	Y1-002	57.1
LTF	Y1-004	16.28
913011	Y1-005 1	14.76
913021	Y1-005 2	14.76
LTF	Y1-007	11.31
LTF	Y1-041	12.87
913522	Y1-078 E	1.69
LTF	Y2-004	21.2
LTF	Y2-005	21.2
LTF	Y2-006	13.02
LTF	Y2-007	42.4
LTF	Y2-008	34.06
914011	Y2-010 C OP1	4.86
914012	Y2-010 E OP1	32.49

Appendix 16

Bus Number	Bus Name	Full Contribution
243858	05FR11_C	.12
243859	05FR11_E	20.07
243861	05FR12_C	.12
243862	05FR12_E	19.73
243863	05FR21_C	.12
243864	05FR21_E	21.09
243866	05FRCS22_C	.12
247924	05FRCS22_E	20.19
243870	05FRCS-3_C	.24
247925	05FRCS-3_E	40.9
243873	05FRCS-4_C	.18
247926	05FRCS-4_E	30.75
246908	05MLCS1_C	.28
246909	05MLCS1_E	48.14
246910	05MLCS-2_C	.28
247930	05MLCS-2_E	48.14
292535	CE23CL12	.29
292536	CE23EL12	1.15
274670	CRAWF;7G	8.93
274671	CRAWF;7Y	9.07
274672	CRAWF;8U	27.07
274849	CRESC;1U	4.1
294702	CRESC;2U	3.61
274751	CRETE;1U	.22
274752	CRETE;2U	.22
274753	CRETE;3U	.22
274754	CRETE;4U	.22
274858	EASYR;U2	13.6
274673	FISK ;9U	27.47
990700	FREEPT_G	4.61
299901	K-002 E	4.57
990901	L-005 E	8.88
274850	M HIL;RU	3.63
293061	N-015 E	10.06
293120	N-021 C	.09
293121	N-021 E	.35
293130	N-022 C	.16
293131	N-022 E	.63
293140	N-023 C	.16
293141	N-023 E	.63
293150	N-024 C	.16

293151	N-024 E	.63
293160	N-025 C	.16
293161	N-025 E	.63
293190	O-003 C	.13
293191	O-003 E	.45
293513	O-009 C1	1.47
293514	O-009 C2	.75
293515	O-009 C3	.82
293516	O-009 E1	5.89
293517	O-009 E2	2.99
293518	O-009 E3	3.3
293655	O-023 E	18.9
293715	O-029 E	6.3
293716	O-029 E	3.45
293717	O-029 E	3.17
290007	O-033 E	1.15
293771	O-035 E	4.51
290021	O-050 E	12.63
293645	O22E	18.9
294392	P-010 E	12.78
294401	P-011 E1	5.93
294410	P-011 E2	5.93
290051	P-014 E	4.61
294500	P-020 C	2.96
294502	P-020 E	11.84
295103	P-024 C	.28
295104	P-024 E	1.13
295106	P-025 C	.28
295107	P-025 E	1.13
290053	P-026 E	1.15
294670	P-037 C	2.03
294671	P-037 E	8.1
294700	P-040 C	.3
294701	P-040 E	1.2
294763	P-046 E	5.76
290089	Q-039 C	2.18
290090	Q-039 E	5.61
290108	Q-057 E	13.88
882311	Q-066	.18
882331	Q-067B	.27
295990	R-016 C1	.91
295992	R-016 C2	.91
295991	R-016 E1	3.63
295993	R-016 E2	3.63

296335	R-033 1	2.59
296336	R-033 2	2.59
296346	R-033 3	1.87
296348	R-033 4	1.87
296827	R-079 C1	2.42
296741	R-079 C2	2.42
296828	R-079 E1	9.66
296740	R-079 E2	9.66
290294	S-036 C1	3.16
290295	S-036 E1	12.62
290298	S-037 C1	3.16
290299	S-037 E1	12.62
884891	S-062 C1	2.9
884901	S-062 C2	2.88
884911	S-062 C3	2.9
884892	S-062 E1	11.61
884902	S-062 E2	11.62
884912	S-062 E3	11.61
274679	SLINE;3U	14.9
274680	SLINE;4U	24.71
885861	T-074 1	.6
885862	T-074 2	.6
885961	T-099 C	1.45
885962	T-099 E	5.82
292416	T-127 C	.28
292417	T-127 E	48.2
886211	T-143 C1	1.91
886221	T-143 C2	1.91
886212	T-143 E1	7.64
886222	T-143 E2	7.64
886261	T-148 C	1.45
886262	T-148 E	5.82
292735	T-183 C	12.05
292736	T-183 E	48.2
292741	T-184 C	12.05
292742	T-184 E	48.2
274861	TCROP;1U	8.03
274862	TCROP;2U	15.59
246416	TWBRANCH	-.35
274802	U PAR;5U	.13
274803	U PAR;6U	.13
887641	U1-049 C	1.17
887642	U1-049 E	7.84
887741	U1-087 C	5.

887742	U1-087 E	33.44
887751	U1-088 C	3.33
887752	U1-088 E	22.3
890511	U3-021 1	3.68
890521	U3-021 2	3.68
891021	U4-003 C	7.83
891022	U4-003 E	52.42
891131	U4-027	7.35
891171	U4-033	.14
274814	UPNOR;0U	.16
274805	UPNOR;1U	.16
274806	UPNOR;2U	.16
274807	UPNOR;3U	.16
274808	UPNOR;4U	.16
274809	UPNOR;5U	.16
274810	UPNOR;6U	.16
274811	UPNOR;7U	.16
274812	UPNOR;8U	.16
274813	UPNOR;9U	.16
274815	UPNOR;XU	.16
274816	UPNOR;YU	.16
892051	V1-022 1	14.44
892061	V1-022 2	14.44
LTF	V3-012	18.11
900371	V4-046	1.44
900381	V4-047	1.44
LTF	W2-033	13.57
902491	W2-079 C	.53
902492	W2-079 E	.87
903432	W3-046	4.25
903442	W3-046	3.94
903452	W3-046	4.25
903462	W3-046	3.94
LTF	W3-083	10.52
903791	W3-132 C	.54
903792	W3-132 E	.87
905071	W4-005 C	3.2
905072	W4-005 E	21.44
905252	W4-033 E1	.39
905262	W4-033 E2	.13
905471	W4-084	.28
905491	W4-086	.17
905501	W4-087	.3
907141	X1-045	.22

907361	X1-087	1.37
907432	X1-099 E	.31
909041	X2-019 C	13.41
LTF	X2-042	36.77
909181	X2-052	496.75
910541	X3-005 C	.3
910542	X3-005 E	.49
LTF	X3-020	13.42
910711	X3-045 1	1.2
910721	X3-045 2	1.25
LTF	X3-096	32.28
LTF	X3-097	45.77
LTF	X3-098	43.39
LTF	X4-029D	12.98
LTF	X4-041	42.87
LTF	Y1-002	55.47
LTF	Y1-004	16.36
913011	Y1-005 1	14.97
913021	Y1-005 2	14.96
LTF	Y1-007	11.36
LTF	Y1-041	12.98
913522	Y1-078 E	1.71
LTF	Y2-004	22.4
LTF	Y2-005	22.4
LTF	Y2-006	14.08
LTF	Y2-007	44.8
LTF	Y2-008	37.81
914011	Y2-010 C OP1	5.89
914012	Y2-010 E OP1	39.4

Appendices for the Secondary Interconnection Option

Appendix 1

Bus Number	Bus Name	Full Contribution
243859	05FR11_E	5.52
243862	05FR12_E	5.42
243864	05FR21_E	5.8
247924	05FRCS22_E	5.55
247925	05FRCS-3_E	11.24
247926	05FRCS-4_E	8.45
246909	05MLCS1_E	13.26
247930	05MLCS-2_E	13.26
246427	BERRIENS	-1.18
246431	BUCHANAN	-.93
246397	ELKHARTH	-.24
246536	MOTTVILL	-.08
292417	T-127 E	13.28
292735	T-183 C	3.32
292736	T-183 E	13.28
292741	T-184 C	3.32
292742	T-184 E	13.28
246416	TWBRANCH	-.49
887741	U1-087 C	1.37
887742	U1-087 E	9.19
887751	U1-088 C	.92
887752	U1-088 E	6.13
891021	U4-003 C	2.16
891022	U4-003 E	14.44
LTF	X2-042	10.45
909181	X2-052	114.26
900404	X3-028 C	59.32
LTF	X3-096	6.4
LTF	X3-097	9.07
LTF	X3-098	8.6
LTF	X4-041	8.5
LTF	Y2-007	8.85
LTF	Y2-008	10.63
914011	Y2-010 C OP2	1.16
914012	Y2-010 E OP2	7.77

Appendix 2

Bus Number	Bus Name	Full Contribution
243859	05FR11_E	5.46
243862	05FR12_E	5.36
243864	05FR21_E	5.73
247924	05FRCS22_E	5.49
247925	05FRCS-3_E	11.12
247926	05FRCS-4_E	8.36
246909	05MLCS1_E	13.12
247930	05MLCS-2_E	13.12
246427	BERRIENS	-1.2
246431	BUCHANAN	-.94
246397	ELKHARTH	-.24
246536	MOTTVILL	-.08
292417	T-127 E	13.13
292735	T-183 C	3.28
292736	T-183 E	13.13
292741	T-184 C	3.28
292742	T-184 E	13.13
246416	TWBRANCH	-.51
887741	U1-087 C	1.36
887742	U1-087 E	9.09
887751	U1-088 C	.91
887752	U1-088 E	6.06
891021	U4-003 C	2.13
891022	U4-003 E	14.28
LTF	X2-042	10.27
909181	X2-052	113.22
900404	X3-028 C	58.24
LTF	X3-096	6.23
LTF	X3-097	8.83
LTF	X3-098	8.37
LTF	X4-041	8.27
LTF	Y2-007	8.62
LTF	Y2-008	10.44
914011	Y2-010 C OP2	1.15
914012	Y2-010 E OP2	7.69

Appendix 3

Bus Number	Bus Name	Full Contribution
243859	05FR11_E	5.46
243862	05FR12_E	5.36
243864	05FR21_E	5.73
247924	05FRCS22_E	5.49
247925	05FRCS-3_E	11.12
247926	05FRCS-4_E	8.36
246909	05MLCS1_E	13.12
247930	05MLCS-2_E	13.12
246427	BERRIENS	-1.2
246431	BUCHANAN	-.94
246397	ELKHARTH	-.24
246536	MOTTVILL	-.08
292417	T-127 E	13.13
292735	T-183 C	3.28
292736	T-183 E	13.13
292741	T-184 C	3.28
292742	T-184 E	13.13
246416	TWBRANCH	-.51
887741	U1-087 C	1.36
887742	U1-087 E	9.09
887751	U1-088 C	.91
887752	U1-088 E	6.06
891021	U4-003 C	2.13
891022	U4-003 E	14.28
LTF	X2-042	10.27
909181	X2-052	113.22
900404	X3-028 C	58.24
LTF	X3-096	6.23
LTF	X3-097	8.83
LTF	X3-098	8.37
LTF	X4-041	8.27
LTF	Y2-007	8.62
LTF	Y2-008	10.44
914011	Y2-010 C OP2	1.15
914012	Y2-010 E OP2	7.69

Appendix 4

Bus Number	Bus Name	Full Contribution
243859	05FR11_E	5.49
243862	05FR12_E	5.4
243864	05FR21_E	5.77
247924	05FRCS22_E	5.53
247925	05FRCS-3_E	11.19
247926	05FRCS-4_E	8.42
246909	05MLCS1_E	13.16
247930	05MLCS-2_E	13.16
246427	BERRIENS	-1.2
246431	BUCHANAN	-.94
246397	ELKHARTH	-.24
246536	MOTTVILL	-.08
292417	T-127 E	13.18
292735	T-183 C	3.29
292736	T-183 E	13.18
292741	T-184 C	3.29
292742	T-184 E	13.18
246416	TWBRANCH	-.5
887741	U1-087 C	1.37
887742	U1-087 E	9.15
887751	U1-088 C	.91
887752	U1-088 E	6.1
891021	U4-003 C	2.14
891022	U4-003 E	14.33
LTF	X2-042	11.17
909181	X2-052	112.55
900404	X3-028 C	63.77
LTF	X3-096	6.05
LTF	X3-097	8.58
LTF	X3-098	8.13
LTF	X4-041	8.03
LTF	Y2-007	8.35
LTF	Y2-008	11.32
914011	Y2-010 C OP2	1.15
914012	Y2-010 E OP2	7.7

Appendix 5

Bus Number	Bus Name	Full Contribution
243858	05FR11_C	.08
243859	05FR11_E	13.76
243861	05FR12_C	.08
243862	05FR12_E	13.53
243863	05FR21_C	.09
243864	05FR21_E	14.46
243866	05FRCS22_C	.08
247924	05FRCS22_E	13.85
243870	05FRCS-3_C	.17
247925	05FRCS-3_E	28.04
243873	05FRCS-4_C	.12
247926	05FRCS-4_E	21.08
246908	05MLCS1_C	.19
246909	05MLCS1_E	32.83
246910	05MLCS-2_C	.19
247930	05MLCS-2_E	32.83
292535	CE23CL12	.27
292536	CE23EL12	1.07
274670	CRAWF;7G	8.43
274671	CRAWF;7Y	8.49
274672	CRAWF;8U	25.56
274849	CRESC;1U	3.74
294702	CRESC;2U	3.3
274751	CRETE;1U	.19
274752	CRETE;2U	.19
274753	CRETE;3U	.19
274754	CRETE;4U	.19
274858	EASYR;U2	12.58
274673	FISK ;9U	26.12
990700	FREEPT_G	4.28
299901	K-002 E	4.24
990901	L-005 E	8.08
274850	M HIL;RU	3.38
293061	N-015 E	9.24
293120	N-021 C	.08
293121	N-021 E	.32
293130	N-022 C	.15
293131	N-022 E	.59
293140	N-023 C	.15
293141	N-023 E	.59
293150	N-024 C	.15

293151	N-024 E	.59
293160	N-025 C	.15
293161	N-025 E	.59
293190	O-003 C	.12
293191	O-003 E	.42
293513	O-009 C1	1.35
293514	O-009 C2	.69
293515	O-009 C3	.76
293516	O-009 E1	5.42
293517	O-009 E2	2.75
293518	O-009 E3	3.03
293655	O-023 E	17.65
293715	O-029 E	5.79
293716	O-029 E	3.18
293717	O-029 E	2.92
290007	O-033 E	1.07
293771	O-035 E	4.12
290021	O-050 E	11.76
293645	O22E	17.65
294392	P-010 E	11.74
294401	P-011 E1	5.41
294410	P-011 E2	5.41
290051	P-014 E	4.3
294500	P-020 C	2.74
294502	P-020 E	10.96
295103	P-024 C	.26
295104	P-024 E	1.05
295106	P-025 C	.26
295107	P-025 E	1.05
290053	P-026 E	1.07
294670	P-037 C	1.86
294671	P-037 E	7.44
294700	P-040 C	.27
294701	P-040 E	1.1
294763	P-046 E	5.34
290089	Q-039 C	1.99
290090	Q-039 E	5.12
290108	Q-057 E	12.98
882311	Q-066	.17
882331	Q-067B	.25
295990	R-016 C1	.84
295992	R-016 C2	.84
295991	R-016 E1	3.36
295993	R-016 E2	3.36

296335	R-033 1	6.63
296336	R-033 2	6.63
296346	R-033 3	4.8
296348	R-033 4	4.8
296827	R-079 C1	2.24
296741	R-079 C2	2.24
296828	R-079 E1	8.95
296740	R-079 E2	8.95
290294	S-036 C1	2.93
290295	S-036 E1	11.7
290298	S-037 C1	2.93
290299	S-037 E1	11.7
884891	S-062 C1	2.66
884901	S-062 C2	2.64
884911	S-062 C3	2.66
884892	S-062 E1	10.63
884902	S-062 E2	10.65
884912	S-062 E3	10.63
274679	SLINE;3U	16.05
274680	SLINE;4U	26.38
885861	T-074 1	.56
885862	T-074 2	.56
885961	T-099 C	1.35
885962	T-099 E	5.41
292416	T-127 C	.19
292417	T-127 E	32.87
886211	T-143 C1	1.74
886221	T-143 C2	1.74
886212	T-143 E1	6.97
886222	T-143 E2	6.97
886261	T-148 C	1.35
886262	T-148 E	5.41
292735	T-183 C	8.22
292736	T-183 E	32.87
292741	T-184 C	8.22
292742	T-184 E	32.87
274861	TCROP;1U	7.5
274862	TCROP;2U	14.56
887641	U1-049 C	1.09
887642	U1-049 E	7.27
887741	U1-087 C	3.43
887742	U1-087 E	22.93
887751	U1-088 C	2.28
887752	U1-088 E	15.29

890511	U3-021 1	3.42
890521	U3-021 2	3.42
891021	U4-003 C	5.34
891022	U4-003 E	35.75
891131	U4-027	6.72
891171	U4-033	.11
274814	UPNOR;0U	.13
274805	UPNOR;1U	.13
274806	UPNOR;2U	.13
274807	UPNOR;3U	.13
274808	UPNOR;4U	.13
274809	UPNOR;5U	.13
274810	UPNOR;6U	.13
274811	UPNOR;7U	.13
274812	UPNOR;8U	.13
274813	UPNOR;9U	.13
274815	UPNOR;XU	.13
274816	UPNOR;YU	.13
892051	V1-022 1	13.56
892061	V1-022 2	13.56
LTF	V3-012	15.46
900371	V4-046	1.34
900381	V4-047	1.34
LTF	W2-033	20.73
902491	W2-079 C	.5
902492	W2-079 E	.81
903432	W3-046	3.97
903442	W3-046	3.68
903452	W3-046	3.97
903462	W3-046	3.68
LTF	W3-083	9.63
903791	W3-132 C	.5
903792	W3-132 E	.81
905252	W4-033 E1	.36
905262	W4-033 E2	.12
905471	W4-084	.26
905491	W4-086	.16
905501	W4-087	.29
907141	X1-045	.21
907361	X1-087	1.28
907432	X1-099 E	.29
909041	X2-019 C	12.53
LTF	X2-042	27.44
909181	X2-052	273.11

910541	X3-005 C	.3
910542	X3-005 E	.49
LTF	X3-020	11.25
910711	X3-045 1	1.13
910721	X3-045 2	1.16
LTF	X3-096	27.05
LTF	X3-097	38.36
LTF	X3-098	36.36
LTF	X4-029D	11.98
LTF	X4-041	35.93
LTF	Y1-002	61.87
LTF	Y1-004	14.05
913011	Y1-005 1	13.75
913021	Y1-005 2	13.74
LTF	Y1-007	9.76
LTF	Y1-041	11.98
913522	Y1-078 E	1.61
LTF	Y2-004	18.76
LTF	Y2-005	18.76
LTF	Y2-006	10.9
LTF	Y2-007	37.52
LTF	Y2-008	28.44
914011	Y2-010 C OP2	2.87
914012	Y2-010 E OP2	19.23

Appendix 6

Bus Number	Bus Name	Full Contribution
243858	05FR11_C	.08
243859	05FR11_E	13.75
243861	05FR12_C	.08
243862	05FR12_E	13.52
243863	05FR21_C	.09
243864	05FR21_E	14.45
243866	05FRCS22_C	.08
247924	05FRCS22_E	13.84
243870	05FRCS-3_C	.17
247925	05FRCS-3_E	28.02
243873	05FRCS-4_C	.12
247926	05FRCS-4_E	21.07
246908	05MLCS1_C	.19
246909	05MLCS1_E	32.8
246910	05MLCS-2_C	.19
247930	05MLCS-2_E	32.8
292535	CE23CL12	.27
292536	CE23EL12	1.09
274670	CRAWF;7G	8.55
274671	CRAWF;7Y	8.62
274672	CRAWF;8U	25.95
274849	CRESC;1U	3.79
294702	CRESC;2U	3.34
274751	CRETE;1U	.19
274752	CRETE;2U	.19
274753	CRETE;3U	.19
274754	CRETE;4U	.19
274858	EASYR;U2	12.76
274673	FISK ;9U	26.53
990700	FREEPT_G	4.34
299901	K-002 E	4.3
990901	L-005 E	8.19
274850	M HIL;RU	3.43
293061	N-015 E	9.38
293120	N-021 C	.08
293121	N-021 E	.33
293130	N-022 C	.15
293131	N-022 E	.6
293140	N-023 C	.15
293141	N-023 E	.6
293150	N-024 C	.15

293151	N-024 E	.6
293160	N-025 C	.15
293161	N-025 E	.6
293190	O-003 C	.12
293191	O-003 E	.42
293513	O-009 C1	1.37
293514	O-009 C2	.7
293515	O-009 C3	.77
293516	O-009 E1	5.49
293517	O-009 E2	2.79
293518	O-009 E3	3.07
293655	O-023 E	17.91
293715	O-029 E	5.87
293716	O-029 E	3.22
293717	O-029 E	2.96
290007	O-033 E	1.09
293771	O-035 E	4.18
290021	O-050 E	11.93
293645	O22E	17.91
294392	P-010 E	11.91
294401	P-011 E1	5.49
294410	P-011 E2	5.49
290051	P-014 E	4.36
294500	P-020 C	2.78
294502	P-020 E	11.12
295103	P-024 C	.27
295104	P-024 E	1.06
295106	P-025 C	.27
295107	P-025 E	1.06
290053	P-026 E	1.09
294670	P-037 C	1.89
294671	P-037 E	7.54
294700	P-040 C	.28
294701	P-040 E	1.11
294763	P-046 E	5.42
290089	Q-039 C	2.02
290090	Q-039 E	5.19
290108	Q-057 E	13.18
882311	Q-066	.18
882331	Q-067B	.26
295990	R-016 C1	.85
295992	R-016 C2	.85
295991	R-016 E1	3.41
295993	R-016 E2	3.41

296335	R-033 1	6.72
296336	R-033 2	6.72
296346	R-033 3	4.87
296348	R-033 4	4.87
296827	R-079 C1	2.27
296741	R-079 C2	2.27
296828	R-079 E1	9.08
296740	R-079 E2	9.08
290294	S-036 C1	2.97
290295	S-036 E1	11.87
290298	S-037 C1	2.97
290299	S-037 E1	11.87
884891	S-062 C1	2.7
884901	S-062 C2	2.68
884911	S-062 C3	2.7
884892	S-062 E1	10.78
884902	S-062 E2	10.8
884912	S-062 E3	10.78
274679	SLINE;3U	16.32
274680	SLINE;4U	26.88
885861	T-074 1	.57
885862	T-074 2	.57
885961	T-099 C	1.37
885962	T-099 E	5.49
292416	T-127 C	.19
292417	T-127 E	32.84
886211	T-143 C1	1.77
886221	T-143 C2	1.77
886212	T-143 E1	7.07
886222	T-143 E2	7.07
886261	T-148 C	1.37
886262	T-148 E	5.49
292735	T-183 C	8.21
292736	T-183 E	32.84
292741	T-184 C	8.21
292742	T-184 E	32.84
274861	TCROP;1U	7.61
274862	TCROP;2U	14.77
887641	U1-049 C	1.1
887642	U1-049 E	7.38
887741	U1-087 C	3.42
887742	U1-087 E	22.91
887751	U1-088 C	2.28
887752	U1-088 E	15.28

890511	U3-021 1	3.48
890521	U3-021 2	3.48
891021	U4-003 C	5.34
891022	U4-003 E	35.72
891131	U4-027	6.81
891171	U4-033	.11
274814	UPNOR;0U	.13
274805	UPNOR;1U	.13
274806	UPNOR;2U	.13
274807	UPNOR;3U	.13
274808	UPNOR;4U	.13
274809	UPNOR;5U	.13
274810	UPNOR;6U	.13
274811	UPNOR;7U	.13
274812	UPNOR;8U	.13
274813	UPNOR;9U	.13
274815	UPNOR;XU	.13
274816	UPNOR;YU	.13
892051	V1-022 1	13.77
892061	V1-022 2	13.77
LTF	V3-012	15.58
900371	V4-046	1.36
900381	V4-047	1.36
LTF	W2-033	21.15
902491	W2-079 C	.5
902492	W2-079 E	.82
903432	W3-046	4.03
903442	W3-046	3.73
903452	W3-046	4.03
903462	W3-046	3.73
LTF	W3-083	9.76
903791	W3-132 C	.51
903792	W3-132 E	.82
905252	W4-033 E1	.36
905262	W4-033 E2	.12
905471	W4-084	.26
905491	W4-086	.16
905501	W4-087	.3
907141	X1-045	.21
907361	X1-087	1.3
907432	X1-099 E	.29
909041	X2-019 C	12.72
LTF	X2-042	27.48
909181	X2-052	272.64

910541	X3-005 C	.31
910542	X3-005 E	.5
LTF	X3-020	11.35
910711	X3-045 1	1.15
910721	X3-045 2	1.18
LTF	X3-096	27.3
LTF	X3-097	38.71
LTF	X3-098	36.7
LTF	X4-029D	12.15
LTF	X4-041	36.26
LTF	Y1-002	63.03
LTF	Y1-004	14.15
913011	Y1-005 1	13.94
913021	Y1-005 2	13.94
LTF	Y1-007	9.82
LTF	Y1-041	12.15
913522	Y1-078 E	1.63
LTF	Y2-004	18.93
LTF	Y2-005	18.93
LTF	Y2-006	10.92
LTF	Y2-007	37.86
LTF	Y2-008	28.49
914011	Y2-010 C OP2	2.87
914012	Y2-010 E OP2	19.22

Appendix 7

Bus Number	Bus Name	Full Contribution
243858	05FR11_C	.08
243859	05FR11_E	13.75
243861	05FR12_C	.08
243862	05FR12_E	13.52
243863	05FR21_C	.09
243864	05FR21_E	14.45
243866	05FRCS22_C	.08
247924	05FRCS22_E	13.84
243870	05FRCS-3_C	.17
247925	05FRCS-3_E	28.02
243873	05FRCS-4_C	.12
247926	05FRCS-4_E	21.07
246908	05MLCS1_C	.19
246909	05MLCS1_E	32.8
246910	05MLCS-2_C	.19
247930	05MLCS-2_E	32.8
292535	CE23CL12	.27
292536	CE23EL12	1.09
274670	CRAWF;7G	8.55
274671	CRAWF;7Y	8.62
274672	CRAWF;8U	25.95
274849	CRESC;1U	3.79
294702	CRESC;2U	3.34
274751	CRETE;1U	.19
274752	CRETE;2U	.19
274753	CRETE;3U	.19
274754	CRETE;4U	.19
274858	EASYR;U2	12.76
274673	FISK ;9U	26.53
990700	FREEPT_G	4.34
299901	K-002 E	4.3
990901	L-005 E	8.19
274850	M HIL;RU	3.43
293061	N-015 E	9.38
293120	N-021 C	.08
293121	N-021 E	.33
293130	N-022 C	.15
293131	N-022 E	.6
293140	N-023 C	.15
293141	N-023 E	.6
293150	N-024 C	.15

293151	N-024 E	.6
293160	N-025 C	.15
293161	N-025 E	.6
293190	O-003 C	.12
293191	O-003 E	.42
293513	O-009 C1	1.37
293514	O-009 C2	.7
293515	O-009 C3	.77
293516	O-009 E1	5.49
293517	O-009 E2	2.79
293518	O-009 E3	3.07
293655	O-023 E	17.91
293715	O-029 E	5.87
293716	O-029 E	3.22
293717	O-029 E	2.96
290007	O-033 E	1.09
293771	O-035 E	4.18
290021	O-050 E	11.93
293645	O22E	17.91
294392	P-010 E	11.91
294401	P-011 E1	5.49
294410	P-011 E2	5.49
290051	P-014 E	4.36
294500	P-020 C	2.78
294502	P-020 E	11.12
295103	P-024 C	.27
295104	P-024 E	1.06
295106	P-025 C	.27
295107	P-025 E	1.06
290053	P-026 E	1.09
294670	P-037 C	1.89
294671	P-037 E	7.54
294700	P-040 C	.28
294701	P-040 E	1.11
294763	P-046 E	5.42
290089	Q-039 C	2.02
290090	Q-039 E	5.19
290108	Q-057 E	13.18
882311	Q-066	.18
882331	Q-067B	.26
295990	R-016 C1	.85
295992	R-016 C2	.85
295991	R-016 E1	3.41
295993	R-016 E2	3.41

296335	R-033 1	6.72
296336	R-033 2	6.72
296346	R-033 3	4.87
296348	R-033 4	4.87
296827	R-079 C1	2.27
296741	R-079 C2	2.27
296828	R-079 E1	9.08
296740	R-079 E2	9.08
290294	S-036 C1	2.97
290295	S-036 E1	11.87
290298	S-037 C1	2.97
290299	S-037 E1	11.87
884891	S-062 C1	2.7
884901	S-062 C2	2.68
884911	S-062 C3	2.7
884892	S-062 E1	10.78
884902	S-062 E2	10.8
884912	S-062 E3	10.78
274679	SLINE;3U	16.32
274680	SLINE;4U	26.88
885861	T-074 1	.57
885862	T-074 2	.57
885961	T-099 C	1.37
885962	T-099 E	5.49
292416	T-127 C	.19
292417	T-127 E	32.84
886211	T-143 C1	1.77
886221	T-143 C2	1.77
886212	T-143 E1	7.07
886222	T-143 E2	7.07
886261	T-148 C	1.37
886262	T-148 E	5.49
292735	T-183 C	8.21
292736	T-183 E	32.84
292741	T-184 C	8.21
292742	T-184 E	32.84
274861	TCROP;1U	7.61
274862	TCROP;2U	14.77
887641	U1-049 C	1.1
887642	U1-049 E	7.38
887741	U1-087 C	3.42
887742	U1-087 E	22.91
887751	U1-088 C	2.28
887752	U1-088 E	15.28

890511	U3-021 1	3.48
890521	U3-021 2	3.48
891021	U4-003 C	5.34
891022	U4-003 E	35.72
891131	U4-027	6.81
891171	U4-033	.11
274814	UPNOR;0U	.13
274805	UPNOR;1U	.13
274806	UPNOR;2U	.13
274807	UPNOR;3U	.13
274808	UPNOR;4U	.13
274809	UPNOR;5U	.13
274810	UPNOR;6U	.13
274811	UPNOR;7U	.13
274812	UPNOR;8U	.13
274813	UPNOR;9U	.13
274815	UPNOR;XU	.13
274816	UPNOR;YU	.13
892051	V1-022 1	13.77
892061	V1-022 2	13.77
LTF	V3-012	15.58
900371	V4-046	1.36
900381	V4-047	1.36
LTF	W2-033	21.15
902491	W2-079 C	.5
902492	W2-079 E	.82
903432	W3-046	4.03
903442	W3-046	3.73
903452	W3-046	4.03
903462	W3-046	3.73
LTF	W3-083	9.76
903791	W3-132 C	.51
903792	W3-132 E	.82
905252	W4-033 E1	.36
905262	W4-033 E2	.12
905471	W4-084	.26
905491	W4-086	.16
905501	W4-087	.3
907141	X1-045	.21
907361	X1-087	1.3
907432	X1-099 E	.29
909041	X2-019 C	12.72
LTF	X2-042	27.48
909181	X2-052	272.64

910541	X3-005 C	.31
910542	X3-005 E	.5
LTF	X3-020	11.35
910711	X3-045 1	1.15
910721	X3-045 2	1.18
LTF	X3-096	27.3
LTF	X3-097	38.71
LTF	X3-098	36.7
LTF	X4-029D	12.15
LTF	X4-041	36.26
LTF	Y1-002	63.03
LTF	Y1-004	14.15
913011	Y1-005 1	13.94
913021	Y1-005 2	13.94
LTF	Y1-007	9.82
LTF	Y1-041	12.15
913522	Y1-078 E	1.63
LTF	Y2-004	18.93
LTF	Y2-005	18.93
LTF	Y2-006	10.92
LTF	Y2-007	37.86
LTF	Y2-008	28.49
914011	Y2-010 C OP2	2.87
914012	Y2-010 E OP2	19.22

Appendix 8

Bus Number	Bus Name	Full Contribution
243858	05FR11_C	.08
243859	05FR11_E	13.88
243861	05FR12_C	.08
243862	05FR12_E	13.65
243863	05FR21_C	.09
243864	05FR21_E	14.59
243866	05FRCS22_C	.08
247924	05FRCS22_E	13.97
243870	05FRCS-3_C	.17
247925	05FRCS-3_E	28.29
243873	05FRCS-4_C	.13
247926	05FRCS-4_E	21.27
246908	05MLCS1_C	.19
246909	05MLCS1_E	32.88
246910	05MLCS-2_C	.19
247930	05MLCS-2_E	32.88
292535	CE23CL12	.23
292536	CE23EL12	.94
274670	CRAWF;7G	7.43
274671	CRAWF;7Y	7.5
274672	CRAWF;8U	22.59
274849	CRESC;1U	3.34
294702	CRESC;2U	2.94
274858	EASYR;U2	4.55
274673	FISK ;9U	23.09
990700	FREEPT_G	3.76
299901	K-002 E	3.73
990901	L-005 E	7.24
274850	M HIL;RU	2.96
246536	MOTTVILL	-.09
293061	N-015 E	8.13
293120	N-021 C	.07
293121	N-021 E	.28
293130	N-022 C	.13
293131	N-022 E	.52
293140	N-023 C	.13
293141	N-023 E	.52
293150	N-024 C	.13
293151	N-024 E	.52
293160	N-025 C	.13
293161	N-025 E	.52

293190	O-003 C	.11
293191	O-003 E	.36
293513	O-009 C1	1.2
293514	O-009 C2	.61
293515	O-009 C3	.67
293516	O-009 E1	4.81
293517	O-009 E2	2.44
293518	O-009 E3	2.69
293655	O-023 E	15.46
293715	O-029 E	5.14
293716	O-029 E	2.82
293717	O-029 E	2.59
290007	O-033 E	.94
293771	O-035 E	3.68
290021	O-050 E	10.33
293645	O22E	15.46
294392	P-010 E	10.32
294401	P-011 E1	4.84
294410	P-011 E2	4.84
290051	P-014 E	3.76
295103	P-024 C	.23
295104	P-024 E	.93
295106	P-025 C	.23
295107	P-025 E	.93
290053	P-026 E	.94
294670	P-037 C	1.65
294671	P-037 E	6.61
294700	P-040 C	.25
294701	P-040 E	.98
294763	P-046 E	4.69
290089	Q-039 C	1.78
290090	Q-039 E	4.57
290108	Q-057 E	11.33
882311	Q-066	.15
882331	Q-067B	.22
295990	R-016 C1	.74
295992	R-016 C2	.74
295991	R-016 E1	2.96
295993	R-016 E2	2.96
296827	R-079 C1	1.98
296741	R-079 C2	1.98
296828	R-079 E1	7.9
296740	R-079 E2	7.9
290294	S-036 C1	2.6

290295	S-036 E1	10.39
290298	S-037 C1	2.6
290299	S-037 E1	10.39
884891	S-062 C1	2.34
884901	S-062 C2	2.32
884911	S-062 C3	2.34
884892	S-062 E1	9.35
884902	S-062 E2	9.36
884912	S-062 E3	9.35
274679	SLINE;3U	14.22
274680	SLINE;4U	23.5
885861	T-074 1	.49
885862	T-074 2	.49
885961	T-099 C	1.19
885962	T-099 E	4.74
292416	T-127 C	.19
292417	T-127 E	32.92
886211	T-143 C1	1.55
886221	T-143 C2	1.55
886212	T-143 E1	6.22
886222	T-143 E2	6.22
886261	T-148 C	1.19
886262	T-148 E	4.74
292735	T-183 C	8.23
292736	T-183 E	32.92
292741	T-184 C	8.23
292742	T-184 E	32.92
274861	TCROP;1U	6.57
274862	TCROP;2U	12.76
887641	U1-049 C	.97
887642	U1-049 E	6.46
887741	U1-087 C	3.46
887742	U1-087 E	23.13
887751	U1-088 C	2.3
887752	U1-088 E	15.42
890511	U3-021 1	3.
890521	U3-021 2	3.
891021	U4-003 C	5.35
891022	U4-003 E	35.8
891131	U4-027	5.99
891171	U4-033	.1
274814	UPNOR;0U	.12
274805	UPNOR;1U	.12
274806	UPNOR;2U	.12

274807	UPNOR;3U	.12
274808	UPNOR;4U	.12
274809	UPNOR;5U	.12
274810	UPNOR;6U	.12
274811	UPNOR;7U	.12
274812	UPNOR;8U	.12
274813	UPNOR;9U	.12
274815	UPNOR;XU	.12
274816	UPNOR;YU	.12
892051	V1-022 1	11.69
892061	V1-022 2	11.69
LTF	V3-012	16.98
900371	V4-046	1.17
900381	V4-047	1.17
LTF	W2-033	24.26
902491	W2-079 C	.44
902492	W2-079 E	.71
903432	W3-046	3.48
903442	W3-046	3.22
903452	W3-046	3.48
903462	W3-046	3.22
LTF	W3-083	8.58
903791	W3-132 C	.44
903792	W3-132 E	.71
905252	W4-033 E1	.32
905262	W4-033 E2	.11
905471	W4-084	.23
905491	W4-086	.14
905501	W4-087	.26
907141	X1-045	.18
907361	X1-087	1.12
907432	X1-099 E	.25
909041	X2-019 C	10.93
LTF	X2-042	31.87
909181	X2-052	267.99
910541	X3-005 C	.27
910542	X3-005 E	.43
LTF	X3-020	11.16
910711	X3-045 1	.98
910721	X3-045 2	1.02
LTF	X3-096	26.85
LTF	X3-097	38.07
LTF	X3-098	36.08
LTF	X4-029D	10.57

LTF	X4-041	35.65
LTF	Y1-002	56.51
LTF	Y1-004	16.34
913011	Y1-005 1	12.06
913021	Y1-005 2	12.06
LTF	Y1-007	11.35
LTF	Y1-041	10.57
913522	Y1-078 E	1.42
LTF	Y2-004	18.57
LTF	Y2-005	18.57
LTF	Y2-006	12.99
LTF	Y2-007	37.15
LTF	Y2-008	32.79
914011	Y2-010 C OP2	2.87
914012	Y2-010 E OP2	19.19

Appendix 9

Bus Number	Bus Name	Full Contribution
243858	05FR11_C	.07
243859	05FR11_E	12.33
243861	05FR12_C	.07
243862	05FR12_E	12.13
243863	05FR21_C	.08
243864	05FR21_E	12.96
243866	05FRCS22_C	.07
247924	05FRCS22_E	12.41
243870	05FRCS-3_C	.15
247925	05FRCS-3_E	25.14
243873	05FRCS-4_C	.11
247926	05FRCS-4_E	18.9
246908	05MLCS1_C	.18
246909	05MLCS1_E	29.74
246910	05MLCS-2_C	.18
247930	05MLCS-2_E	29.74
274654	BRAID;1U	2.94
274655	BRAID;2U	2.87
274865	CAYUG;1U C1	2.66
274863	CAYUG;1U E1	10.63
274866	CAYUG;2U C2	2.66
274864	CAYUG;2U E2	10.63
292535	CE23CL12	.37
292536	CE23EL12	1.47
274670	CRAWF;7G	10.42
274671	CRAWF;7Y	10.54
274672	CRAWF;8U	31.23
274849	CRESC;1U	4.86
294702	CRESC;2U	4.29
274751	CRETE;1U	.19
274752	CRETE;2U	.19
274753	CRETE;3U	.19
274754	CRETE;4U	.19
274858	EASYR;U2	16.88
274673	FISK ;9U	31.64
990700	FREEPT_G	5.77
299901	K-002 E	5.7
990901	L-005 E	10.46
274660	LASCO;1U	2.74
274661	LASCO;2U	2.74
274850	M HIL;RU	4.63

274847	N-015 C	.07
293061	N-015 E	12.12
293120	N-021 C	.11
293121	N-021 E	.44
293130	N-022 C	.2
293131	N-022 E	.81
293140	N-023 C	.2
293141	N-023 E	.81
293150	N-024 C	.2
293151	N-024 E	.81
293160	N-025 C	.2
293161	N-025 E	.81
293190	O-003 C	.17
293191	O-003 E	.57
293513	O-009 C1	1.79
293514	O-009 C2	.91
293515	O-009 C3	1.
293516	O-009 E1	7.18
293517	O-009 E2	3.64
293518	O-009 E3	4.01
293655	O-023 E	23.37
293665	O-024 E	.21
293667	O-024 E	.41
293715	O-029 E	7.67
293716	O-029 E	4.21
293717	O-029 E	3.87
290007	O-033 E	1.47
293771	O-035 E	5.36
290021	O-050 E	15.5
293645	O22E	23.37
294391	P-010 C	.09
294392	P-010 E	15.39
294401	P-011 E1	7.04
294410	P-011 E2	7.04
290051	P-014 E	5.88
294500	P-020 C	3.68
294502	P-020 E	14.72
295103	P-024 C	.35
295104	P-024 E	1.41
295106	P-025 C	.35
295107	P-025 E	1.41
290053	P-026 E	1.47
294670	P-037 C	2.45
294671	P-037 E	9.81

294700	P-040 C	.36
294701	P-040 E	1.43
294763	P-046 E	7.21
290089	Q-039 C	2.59
290090	Q-039 E	6.65
290108	Q-057 E	17.89
882311	Q-066	.2
882331	Q-067B	.34
295990	R-016 C1	1.14
295992	R-016 C2	1.14
295991	R-016 E1	4.54
295993	R-016 E2	4.54
296308	R-030 C1	2.88
296271	R-030 C2	2.88
296125	R-030 C3	2.91
296309	R-030 E1	11.52
296272	R-030 E2	11.52
296128	R-030 E3	11.66
296827	R-079 C1	2.89
296741	R-079 C2	2.89
296828	R-079 E1	11.54
296740	R-079 E2	11.54
290294	S-036 C1	3.54
290295	S-036 E1	14.15
290298	S-037 C1	3.54
290299	S-037 E1	14.15
884780	S-058 C	68.36
884781	S-058 E	225.38
884891	S-062 C1	3.45
884901	S-062 C2	3.43
884911	S-062 C3	3.45
884892	S-062 E1	13.81
884902	S-062 E2	13.83
884912	S-062 E3	13.81
274680	SLINE;4U	27.95
885861	T-074 1	.77
885862	T-074 2	.77
885961	T-099 C	1.83
885962	T-099 E	7.33
886001	T-105 C	6.2
886002	T-105 E	24.8
292416	T-127 C	.18
292417	T-127 E	29.78
886211	T-143 C1	2.27

886221	T-143 C2	2.27
886212	T-143 E1	9.07
886222	T-143 E2	9.07
886261	T-148 C	1.83
886262	T-148 E	7.33
292735	T-183 C	7.45
292736	T-183 E	29.78
292741	T-184 C	7.45
292742	T-184 E	29.78
274861	TCROP;1U	9.93
274862	TCROP;2U	19.28
274802	U PAR;5U	.13
274803	U PAR;6U	.13
887641	U1-049 C	1.31
887642	U1-049 E	8.79
887741	U1-087 C	3.07
887742	U1-087 E	20.55
887751	U1-088 C	2.05
887752	U1-088 E	13.7
890511	U3-021 1	4.65
890521	U3-021 2	4.65
890570	U3-026 C1	24.02
890571	U3-026 C2	24.02
891021	U4-003 C	4.84
891022	U4-003 E	32.39
891131	U4-027	8.79
891171	U4-033	.12
274814	UPNOR;0U	.14
274805	UPNOR;1U	.14
274806	UPNOR;2U	.14
274807	UPNOR;3U	.14
274808	UPNOR;4U	.14
274809	UPNOR;5U	.14
274810	UPNOR;6U	.14
274811	UPNOR;7U	.14
274812	UPNOR;8U	.14
274813	UPNOR;9U	.14
274815	UPNOR;XU	.14
274816	UPNOR;YU	.14
892051	V1-022 1	19.17
892061	V1-022 2	19.17
292068	V1-024	.05
292069	V1-025	.05
LTF	V3-012	12.26

900371	V4-046	1.8
900381	V4-047	1.8
900391	V4-048	.05
900401	V4-049	.05
902491	W2-079 C	.67
902492	W2-079 E	1.1
903432	W3-046	5.26
903442	W3-046	4.87
903452	W3-046	5.26
903462	W3-046	4.87
LTF	W3-083	12.43
903791	W3-132 C	.68
903792	W3-132 E	1.1
903801	W3-134	.03
905261	W4-033 C2	.
905252	W4-033 E1	.46
905262	W4-033 E2	.16
905471	W4-084	.35
905491	W4-086	.21
905501	W4-087	.34
274686	WILL ;3U	.59
907141	X1-045	.3
907361	X1-087	1.73
907432	X1-099 E	.37
909041	X2-019 C	17.09
LTF	X2-042	17.5
910541	X3-005 C	.35
910542	X3-005 E	.57
LTF	X3-020	11.93
910711	X3-045 1	1.58
910721	X3-045 2	1.55
LTF	X3-096	28.69
LTF	X3-097	40.69
LTF	X3-098	38.56
LTF	X4-029D	16.1
LTF	X4-041	38.1
LTF	Y1-002	50.72
LTF	Y1-004	8.74
913011	Y1-005 1	18.03
913021	Y1-005 2	18.03
LTF	Y1-041	16.1
913522	Y1-078 E	1.96
LTF	Y2-004	20.01
LTF	Y2-005	20.01

LTF	Y2-007	40.03
LTF	Y2-008	18.53
914011	Y2-010 C OP2	2.62
914012	Y2-010 E OP2	17.5

Appendix 10

Bus Number	Bus Name	Full Contribution
243858	05FR11_C	.07
243859	05FR11_E	12.33
243861	05FR12_C	.07
243862	05FR12_E	12.13
243863	05FR21_C	.08
243864	05FR21_E	12.96
243866	05FRCS22_C	.07
247924	05FRCS22_E	12.41
243870	05FRCS-3_C	.15
247925	05FRCS-3_E	25.14
243873	05FRCS-4_C	.11
247926	05FRCS-4_E	18.9
246908	05MLCS1_C	.18
246909	05MLCS1_E	29.74
246910	05MLCS-2_C	.18
247930	05MLCS-2_E	29.74
274654	BRAID;1U	2.94
274655	BRAID;2U	2.87
274865	CAYUG;1U C1	2.66
274863	CAYUG;1U E1	10.63
274866	CAYUG;2U C2	2.66
274864	CAYUG;2U E2	10.63
292535	CE23CL12	.37
292536	CE23EL12	1.47
274670	CRAWF;7G	10.42
274671	CRAWF;7Y	10.54
274672	CRAWF;8U	31.23
274849	CRESC;1U	4.86
294702	CRESC;2U	4.29
274751	CRETE;1U	.19
274752	CRETE;2U	.19
274753	CRETE;3U	.19
274754	CRETE;4U	.19
274858	EASYR;U2	16.88
274673	FISK ;9U	31.64
990700	FREEPT_G	5.77
299901	K-002 E	5.7
990901	L-005 E	10.46
274660	LASCO;1U	2.74
274661	LASCO;2U	2.74
274850	M HIL;RU	4.63

274847	N-015 C	.07
293061	N-015 E	12.12
293120	N-021 C	.11
293121	N-021 E	.44
293130	N-022 C	.2
293131	N-022 E	.81
293140	N-023 C	.2
293141	N-023 E	.81
293150	N-024 C	.2
293151	N-024 E	.81
293160	N-025 C	.2
293161	N-025 E	.81
293190	O-003 C	.17
293191	O-003 E	.57
293513	O-009 C1	1.79
293514	O-009 C2	.91
293515	O-009 C3	1.
293516	O-009 E1	7.18
293517	O-009 E2	3.64
293518	O-009 E3	4.01
293655	O-023 E	23.38
293665	O-024 E	.21
293667	O-024 E	.41
293715	O-029 E	7.67
293716	O-029 E	4.21
293717	O-029 E	3.87
290007	O-033 E	1.47
293771	O-035 E	5.36
290021	O-050 E	15.5
293645	O22E	23.38
294391	P-010 C	.09
294392	P-010 E	15.39
294401	P-011 E1	7.04
294410	P-011 E2	7.04
290051	P-014 E	5.88
294500	P-020 C	3.68
294502	P-020 E	14.72
295103	P-024 C	.35
295104	P-024 E	1.41
295106	P-025 C	.35
295107	P-025 E	1.41
290053	P-026 E	1.47
294670	P-037 C	2.45
294671	P-037 E	9.81

294700	P-040 C	.36
294701	P-040 E	1.43
294763	P-046 E	7.21
290089	Q-039 C	2.59
290090	Q-039 E	6.65
290108	Q-057 E	17.89
882311	Q-066	.2
882331	Q-067B	.34
295990	R-016 C1	1.14
295992	R-016 C2	1.14
295991	R-016 E1	4.54
295993	R-016 E2	4.54
296308	R-030 C1	2.88
296271	R-030 C2	2.88
296125	R-030 C3	2.91
296309	R-030 E1	11.52
296272	R-030 E2	11.52
296128	R-030 E3	11.66
296827	R-079 C1	2.89
296741	R-079 C2	2.89
296828	R-079 E1	11.54
296740	R-079 E2	11.54
290294	S-036 C1	3.54
290295	S-036 E1	14.15
290298	S-037 C1	3.54
290299	S-037 E1	14.15
884780	S-058 C	68.38
884781	S-058 E	225.45
884891	S-062 C1	3.45
884901	S-062 C2	3.43
884911	S-062 C3	3.45
884892	S-062 E1	13.81
884902	S-062 E2	13.83
884912	S-062 E3	13.81
274680	SLINE;4U	27.95
885861	T-074 1	.77
885862	T-074 2	.77
885961	T-099 C	1.83
885962	T-099 E	7.33
886001	T-105 C	6.2
886002	T-105 E	24.8
292416	T-127 C	.18
292417	T-127 E	29.78
886211	T-143 C1	2.27

886221	T-143 C2	2.27
886212	T-143 E1	9.07
886222	T-143 E2	9.07
886261	T-148 C	1.83
886262	T-148 E	7.33
292735	T-183 C	7.45
292736	T-183 E	29.78
292741	T-184 C	7.45
292742	T-184 E	29.78
274861	TCROP;1U	9.93
274862	TCROP;2U	19.29
274802	U PAR;5U	.13
274803	U PAR;6U	.13
887641	U1-049 C	1.31
887642	U1-049 E	8.79
887741	U1-087 C	3.07
887742	U1-087 E	20.55
887751	U1-088 C	2.05
887752	U1-088 E	13.7
890511	U3-021 1	4.65
890521	U3-021 2	4.65
890570	U3-026 C1	24.03
890571	U3-026 C2	24.03
891021	U4-003 C	4.84
891022	U4-003 E	32.39
891131	U4-027	8.79
891171	U4-033	.12
274814	UPNOR;0U	.14
274805	UPNOR;1U	.14
274806	UPNOR;2U	.14
274807	UPNOR;3U	.14
274808	UPNOR;4U	.14
274809	UPNOR;5U	.14
274810	UPNOR;6U	.14
274811	UPNOR;7U	.14
274812	UPNOR;8U	.14
274813	UPNOR;9U	.14
274815	UPNOR;XU	.14
274816	UPNOR;YU	.14
892051	V1-022 1	19.17
892061	V1-022 2	19.17
292068	V1-024	.05
292069	V1-025	.05
LTF	V3-012	12.26

900371	V4-046	1.8
900381	V4-047	1.8
900391	V4-048	.05
900401	V4-049	.05
902491	W2-079 C	.67
902492	W2-079 E	1.1
903432	W3-046	5.26
903442	W3-046	4.87
903452	W3-046	5.26
903462	W3-046	4.87
LTF	W3-083	12.43
903791	W3-132 C	.68
903792	W3-132 E	1.1
903801	W3-134	.03
905261	W4-033 C2	.
905252	W4-033 E1	.46
905262	W4-033 E2	.16
905471	W4-084	.35
905491	W4-086	.21
905501	W4-087	.34
274686	WILL ;3U	.59
907141	X1-045	.3
907361	X1-087	1.73
907432	X1-099 E	.37
909041	X2-019 C	17.09
LTF	X2-042	17.5
910541	X3-005 C	.35
910542	X3-005 E	.57
LTF	X3-020	11.93
910711	X3-045 1	1.58
910721	X3-045 2	1.55
LTF	X3-096	28.69
LTF	X3-097	40.69
LTF	X3-098	38.56
LTF	X4-029D	16.1
LTF	X4-041	38.1
LTF	Y1-002	50.72
LTF	Y1-004	8.74
913011	Y1-005 1	18.03
913021	Y1-005 2	18.03
LTF	Y1-041	16.1
913522	Y1-078 E	1.96
LTF	Y2-004	20.01
LTF	Y2-005	20.01

LTF	Y2-007	40.03
LTF	Y2-008	18.53
914011	Y2-010 C OP2	2.62
914012	Y2-010 E OP2	17.5

Appendix 11

Bus Number	Bus Name	Full Contribution
243858	05FR11_C	.07
243859	05FR11_E	12.38
243861	05FR12_C	.07
243862	05FR12_E	12.17
243863	05FR21_C	.08
243864	05FR21_E	13.01
243866	05FRCS22_C	.07
247924	05FRCS22_E	12.46
243870	05FRCS-3_C	.15
247925	05FRCS-3_E	25.23
243873	05FRCS-4_C	.11
247926	05FRCS-4_E	18.97
246908	05MLCS1_C	.17
246909	05MLCS1_E	29.4
246910	05MLCS-2_C	.17
247930	05MLCS-2_E	29.4
274865	CAYUG;1U C1	2.43
274863	CAYUG;1U E1	9.71
274866	CAYUG;2U C2	2.43
274864	CAYUG;2U E2	9.71
292535	CE23CL12	.33
292536	CE23EL12	1.32
274670	CRAWF;7G	9.2
274671	CRAWF;7Y	9.32
274672	CRAWF;8U	27.52
274849	CRESC;1U	4.42
294702	CRESC;2U	3.9
274858	EASYR;U2	15.26
274673	FISK ;9U	27.81
990700	FREETPT_G	5.2
299901	K-002 E	5.15
990901	L-005 E	9.57
274850	M HIL;RU	4.16
293061	N-015 E	10.8
293120	N-021 C	.1
293121	N-021 E	.4
293130	N-022 C	.18
293131	N-022 E	.73
293140	N-023 C	.18
293141	N-023 E	.73
293150	N-024 C	.18

293151	N-024 E	.73
293160	N-025 C	.18
293161	N-025 E	.73
293190	O-003 C	.15
293191	O-003 E	.51
293513	O-009 C1	1.63
293514	O-009 C2	.83
293515	O-009 C3	.91
293516	O-009 E1	6.52
293517	O-009 E2	3.31
293518	O-009 E3	3.64
293655	O-023 E	20.84
293665	O-024 E	6.44
293667	O-024 E	12.77
293715	O-029 E	6.97
293716	O-029 E	3.82
293717	O-029 E	3.51
290007	O-033 E	1.32
293771	O-035 E	4.87
290021	O-050 E	13.84
293645	O22E	20.84
294392	P-010 E	13.72
294401	P-011 E1	6.42
294410	P-011 E2	6.42
290051	P-014 E	5.29
294500	P-020 C	3.33
294502	P-020 E	13.32
295103	P-024 C	.32
295104	P-024 E	1.27
295106	P-025 C	.32
295107	P-025 E	1.27
290053	P-026 E	1.32
294670	P-037 C	2.23
294671	P-037 E	8.92
294700	P-040 C	.32
294701	P-040 E	1.3
294763	P-046 E	6.49
290089	Q-039 C	2.36
290090	Q-039 E	6.06
290108	Q-057 E	16.05
882311	Q-066	.17
882331	Q-067B	.3
295990	R-016 C1	1.02
295992	R-016 C2	1.02

295991	R-016 E1	4.09
295993	R-016 E2	4.09
296308	R-030 C1	2.65
296271	R-030 C2	2.65
296125	R-030 C3	2.68
296309	R-030 E1	10.61
296272	R-030 E2	10.61
296128	R-030 E3	10.74
296827	R-079 C1	2.58
296741	R-079 C2	2.58
296828	R-079 E1	10.32
296740	R-079 E2	10.32
290294	S-036 C1	3.12
290295	S-036 E1	12.49
290298	S-037 C1	3.12
290299	S-037 E1	12.49
884780	S-058 C	60.51
884781	S-058 E	199.5
884891	S-062 C1	3.07
884901	S-062 C2	3.05
884911	S-062 C3	3.07
884892	S-062 E1	12.27
884902	S-062 E2	12.29
884912	S-062 E3	12.27
885861	T-074 1	.69
885862	T-074 2	.69
885961	T-099 C	1.65
885962	T-099 E	6.59
886001	T-105 C	5.67
886002	T-105 E	22.66
292416	T-127 C	.17
292417	T-127 E	29.43
886211	T-143 C1	2.06
886221	T-143 C2	2.06
886212	T-143 E1	8.23
886222	T-143 E2	8.23
886261	T-148 C	1.65
886262	T-148 E	6.59
292735	T-183 C	7.36
292736	T-183 E	29.43
292741	T-184 C	7.36
292742	T-184 E	29.43
274861	TCROP;1U	8.86
274862	TCROP;2U	17.19

274802	U PAR;5U	.12
274803	U PAR;6U	.12
887641	U1-049 C	1.16
887642	U1-049 E	7.76
887741	U1-087 C	3.08
887742	U1-087 E	20.63
887751	U1-088 C	2.06
887752	U1-088 E	13.75
890511	U3-021 1	4.17
890521	U3-021 2	4.17
890570	U3-026 C1	21.26
890571	U3-026 C2	21.26
891021	U4-003 C	4.78
891022	U4-003 E	32.01
891131	U4-027	8.
891171	U4-033	.11
274814	UPNOR;0U	.13
274805	UPNOR;1U	.13
274806	UPNOR;2U	.13
274807	UPNOR;3U	.13
274808	UPNOR;4U	.13
274809	UPNOR;5U	.13
274810	UPNOR;6U	.13
274811	UPNOR;7U	.13
274812	UPNOR;8U	.13
274813	UPNOR;9U	.13
274815	UPNOR;XU	.13
274816	UPNOR;YU	.13
892051	V1-022 1	17.04
892061	V1-022 2	17.04
LTF	V3-012	15.46
900371	V4-046	1.62
900381	V4-047	1.62
902491	W2-079 C	.6
902492	W2-079 E	.99
903432	W3-046	4.69
903442	W3-046	4.34
903452	W3-046	4.69
903462	W3-046	4.34
LTF	W3-083	11.25
903791	W3-132 C	.61
903792	W3-132 E	.98
905252	W4-033 E1	.41
905262	W4-033 E2	.14

905471	W4-084	.31
905491	W4-086	.18
905501	W4-087	.3
907141	X1-045	.26
907361	X1-087	1.55
907432	X1-099 E	.33
909041	X2-019 C	15.28
LTF	X2-042	25.15
910541	X3-005 C	.3
910542	X3-005 E	.49
LTF	X3-020	12.28
910711	X3-045 1	1.4
910721	X3-045 2	1.39
LTF	X3-096	29.54
LTF	X3-097	41.89
LTF	X3-098	39.7
LTF	X4-029D	14.54
LTF	X4-041	39.23
LTF	Y1-002	41.33
LTF	Y1-004	13.12
913011	Y1-005 1	16.02
913021	Y1-005 2	16.02
LTF	Y1-007	9.11
LTF	Y1-041	14.54
913522	Y1-078 E	1.73
LTF	Y2-004	20.53
LTF	Y2-005	20.53
LTF	Y2-006	9.52
LTF	Y2-007	41.07
LTF	Y2-008	26.13
914011	Y2-010 C OP2	2.57
914012	Y2-010 E OP2	17.17

Appendix 12

Bus Number	Bus Name	Full Contribution
243858	05FR11_C	.09
243859	05FR11_E	14.95
243861	05FR12_C	.09
243862	05FR12_E	14.7
243863	05FR21_C	.09
243864	05FR21_E	15.72
243866	05FRCS22_C	.09
247924	05FRCS22_E	15.05
243870	05FRCS-3_C	.18
247925	05FRCS-3_E	30.48
243873	05FRCS-4_C	.14
247926	05FRCS-4_E	22.91
246908	05MLCS1_C	.16
246909	05MLCS1_E	26.42
246910	05MLCS-2_C	.16
247930	05MLCS-2_E	26.42
243442	05RKG1	6.12
243443	05RKG2	6.03
274865	CAYUG;1U C1	2.17
274863	CAYUG;1U E1	8.7
274866	CAYUG;2U C2	2.17
274864	CAYUG;2U E2	8.7
274849	CRESC;1U	3.44
294702	CRESC;2U	3.03
274650	KINCA;1U	1.51
274651	KINCA;2U	1.51
990901	L-005 E	8.03
293665	O-024 E	6.5
293667	O-024 E	12.88
293771	O-035 E	3.79
294401	P-011 E1	5.07
294410	P-011 E2	5.07
294700	P-040 C	.25
294701	P-040 E	1.01
290089	Q-039 C	1.86
290090	Q-039 E	4.79
296308	R-030 C1	2.67
296271	R-030 C2	2.67
296125	R-030 C3	2.71
296309	R-030 E1	10.7
296272	R-030 E2	10.7

296128	R-030 E3	10.83
886001	T-105 C	5.07
886002	T-105 E	20.29
292416	T-127 C	.16
292417	T-127 E	26.46
886211	T-143 C1	1.57
886221	T-143 C2	1.57
886212	T-143 E1	6.3
886222	T-143 E2	6.3
292735	T-183 C	6.61
292736	T-183 E	26.46
292741	T-184 C	6.61
292742	T-184 E	26.46
274853	TWING;U1	14.52
274854	TWING;U2	14.52
887741	U1-087 C	3.72
887742	U1-087 E	24.92
887751	U1-088 C	2.48
887752	U1-088 E	16.61
891021	U4-003 C	4.3
891022	U4-003 E	28.77
891131	U4-027	6.13
891211	U4-037 C	2.86
891212	U4-037 E	19.18
893031	V2-008	66.14
LTF	V2-031	8.46
LTF	V2-032	8.33
LTF	V3-012	16.44
902352	W2-048 E	6.85
905071	W4-005 C	4.56
905072	W4-005 E	30.56
909062	X2-022 E OP1	20.73
LTF	X3-020	23.2
900404	X3-028 C	687.02
LTF	X3-096	55.81
LTF	X3-097	79.14
LTF	X3-098	75.02
LTF	X4-029D	8.79
LTF	X4-041	74.11
LTF	Y1-002	22.68
LTF	Y1-004	10.42
LTF	Y1-041	8.79
LTF	Y1-090	13.53
LTF	Y2-004	38.97

LTF	Y2-005	38.97
LTF	Y2-007	77.95
914011	Y2-010 C OP2	1.91
914012	Y2-010 E OP2	12.76

Appendix 13

Bus Number	Bus Name	Full Contribution
243858	05FR11_C	.12
243859	05FR11_E	20.07
243861	05FR12_C	.12
243862	05FR12_E	19.73
243863	05FR21_C	.12
243864	05FR21_E	21.09
243866	05FRCS22_C	.12
247924	05FRCS22_E	20.19
243870	05FRCS-3_C	.24
247925	05FRCS-3_E	40.9
243873	05FRCS-4_C	.18
247926	05FRCS-4_E	30.75
246908	05MLCS1_C	.28
246909	05MLCS1_E	48.14
246910	05MLCS-2_C	.28
247930	05MLCS-2_E	48.14
292535	CE23CL12	.29
292536	CE23EL12	1.15
274670	CRAWF;7G	8.93
274671	CRAWF;7Y	9.07
274672	CRAWF;8U	27.07
274849	CRESC;1U	4.1
294702	CRESC;2U	3.61
274751	CRETE;1U	.22
274752	CRETE;2U	.22
274753	CRETE;3U	.22
274754	CRETE;4U	.22
274858	EASYR;U2	13.6
274673	FISK ;9U	27.47
990700	FREEPT_G	4.61
299901	K-002 E	4.57
990901	L-005 E	8.88
274850	M HIL;RU	3.63
293061	N-015 E	10.06
293120	N-021 C	.09
293121	N-021 E	.35
293130	N-022 C	.16
293131	N-022 E	.63
293140	N-023 C	.16
293141	N-023 E	.63
293150	N-024 C	.16

293151	N-024 E	.63
293160	N-025 C	.16
293161	N-025 E	.63
293190	O-003 C	.13
293191	O-003 E	.45
293513	O-009 C1	1.47
293514	O-009 C2	.75
293515	O-009 C3	.82
293516	O-009 E1	5.89
293517	O-009 E2	2.99
293518	O-009 E3	3.3
293655	O-023 E	18.9
293715	O-029 E	6.3
293716	O-029 E	3.45
293717	O-029 E	3.17
290007	O-033 E	1.15
293771	O-035 E	4.51
290021	O-050 E	12.63
293645	O22E	18.9
294392	P-010 E	12.78
294401	P-011 E1	5.93
294410	P-011 E2	5.93
290051	P-014 E	4.61
294500	P-020 C	2.96
294502	P-020 E	11.84
295103	P-024 C	.28
295104	P-024 E	1.13
295106	P-025 C	.28
295107	P-025 E	1.13
290053	P-026 E	1.15
294670	P-037 C	2.03
294671	P-037 E	8.1
294700	P-040 C	.3
294701	P-040 E	1.2
294763	P-046 E	5.76
290089	Q-039 C	2.18
290090	Q-039 E	5.61
290108	Q-057 E	13.88
882311	Q-066	.18
882331	Q-067B	.27
295990	R-016 C1	.91
295992	R-016 C2	.91
295991	R-016 E1	3.63
295993	R-016 E2	3.63

296335	R-033 1	12.19
296336	R-033 2	12.19
296346	R-033 3	8.83
296348	R-033 4	8.83
296827	R-079 C1	2.42
296741	R-079 C2	2.42
296828	R-079 E1	9.66
296740	R-079 E2	9.66
290294	S-036 C1	3.16
290295	S-036 E1	12.62
290298	S-037 C1	3.16
290299	S-037 E1	12.62
884891	S-062 C1	2.9
884901	S-062 C2	2.88
884911	S-062 C3	2.9
884892	S-062 E1	11.61
884902	S-062 E2	11.62
884912	S-062 E3	11.61
274679	SLINE;3U	14.9
274680	SLINE;4U	24.71
885861	T-074 1	.6
885862	T-074 2	.6
885961	T-099 C	1.45
885962	T-099 E	5.82
292416	T-127 C	.28
292417	T-127 E	48.2
886211	T-143 C1	1.91
886221	T-143 C2	1.91
886212	T-143 E1	7.64
886222	T-143 E2	7.64
886261	T-148 C	1.45
886262	T-148 E	5.82
292735	T-183 C	12.05
292736	T-183 E	48.2
292741	T-184 C	12.05
292742	T-184 E	48.2
274861	TCROP;1U	8.03
274862	TCROP;2U	15.59
246416	TWBRANCH	-.35
274853	TWING;U1	2.84
274854	TWING;U2	2.84
274802	U PAR;5U	.13
274803	U PAR;6U	.13
887641	U1-049 C	1.17

887642	U1-049 E	7.84
887741	U1-087 C	5.
887742	U1-087 E	33.44
887751	U1-088 C	3.33
887752	U1-088 E	22.3
890511	U3-021 1	3.68
890521	U3-021 2	3.68
891021	U4-003 C	7.83
891022	U4-003 E	52.42
891131	U4-027	7.35
891171	U4-033	.14
891211	U4-037 C	1.82
891212	U4-037 E	12.19
274814	UPNOR;0U	.16
274805	UPNOR;1U	.16
274806	UPNOR;2U	.16
274807	UPNOR;3U	.16
274808	UPNOR;4U	.16
274809	UPNOR;5U	.16
274810	UPNOR;6U	.16
274811	UPNOR;7U	.16
274812	UPNOR;8U	.16
274813	UPNOR;9U	.16
274815	UPNOR;XU	.16
274816	UPNOR;YU	.16
892051	V1-022 1	14.44
892061	V1-022 2	14.44
LTF	V3-012	18.11
900371	V4-046	1.44
900381	V4-047	1.44
LTF	W2-033	13.57
902352	W2-048 E	4.36
902491	W2-079 C	.53
902492	W2-079 E	.87
903432	W3-046	4.25
903442	W3-046	3.94
903452	W3-046	4.25
903462	W3-046	3.94
LTF	W3-083	10.52
903791	W3-132 C	.54
903792	W3-132 E	.87
905071	W4-005 C	3.2
905072	W4-005 E	21.44
905252	W4-033 E1	.39

905262	W4-033 E2	.13
905471	W4-084	.28
905491	W4-086	.17
905501	W4-087	.3
907141	X1-045	.22
907361	X1-087	1.37
907432	X1-099 E	.31
909041	X2-019 C	13.41
909062	X2-022 E OP1	13.17
LTF	X2-042	36.77
910541	X3-005 C	.3
910542	X3-005 E	.49
LTF	X3-020	13.42
910711	X3-045 1	1.2
910721	X3-045 2	1.25
LTF	X3-096	32.28
LTF	X3-097	45.77
LTF	X3-098	43.39
LTF	X4-029D	12.98
LTF	X4-041	42.87
LTF	Y1-002	55.47
LTF	Y1-004	16.36
913011	Y1-005 1	14.97
913021	Y1-005 2	14.96
LTF	Y1-007	11.36
LTF	Y1-041	12.98
913522	Y1-078 E	1.71
LTF	Y2-004	22.4
LTF	Y2-005	22.4
LTF	Y2-006	14.08
LTF	Y2-007	44.8
LTF	Y2-008	37.81
914011	Y2-010 C OP2	4.22
914012	Y2-010 E OP2	28.25

Appendix 14

Bus Number	Bus Name	Full Contribution
243858	05FR11_C	.12
243859	05FR11_E	19.8
243861	05FR12_C	.12
243862	05FR12_E	19.47
243863	05FR21_C	.12
243864	05FR21_E	20.81
243866	05FRCS22_C	.12
247924	05FRCS22_E	19.93
243870	05FRCS-3_C	.24
247925	05FRCS-3_E	40.36
243873	05FRCS-4_C	.18
247926	05FRCS-4_E	30.35
246908	05MLCS1_C	.28
246909	05MLCS1_E	47.43
246910	05MLCS-2_C	.28
247930	05MLCS-2_E	47.43
246427	BERRIENS	-.36
246431	BUCHANAN	-.22
292416	T-127 C	.28
292417	T-127 E	47.49
292735	T-183 C	11.87
292736	T-183 E	47.49
292741	T-184 C	11.87
292742	T-184 E	47.49
887741	U1-087 C	4.93
887742	U1-087 E	33.
887751	U1-088 C	3.29
887752	U1-088 E	22.
891021	U4-003 C	7.72
891022	U4-003 E	51.65
LTF	V3-012	13.24
LTF	W2-033	11.09
LTF	X2-042	41.
LTF	X3-020	6.01
900404	X3-028 C	212.62
LTF	X3-096	14.46
LTF	X3-097	20.5
LTF	X3-098	19.44
LTF	X4-041	19.2
LTF	Y1-004	15.16
LTF	Y1-007	10.53

LTF	Y2-004	9.91
LTF	Y2-005	9.91
LTF	Y2-006	16.37
LTF	Y2-007	19.82
LTF	Y2-008	40.96
914011	Y2-010 C OP2	4.59
914012	Y2-010 E OP2	30.69

Appendix 15

Bus Number	Bus Name	Full Contribution
243858	05FR11_C	.1
243859	05FR11_E	16.74
243861	05FR12_C	.1
243862	05FR12_E	16.47
243863	05FR21_C	.1
243864	05FR21_E	17.6
243866	05FRCS22_C	.1
247924	05FRCS22_E	16.85
243870	05FRCS-3_C	.2
247925	05FRCS-3_E	34.13
243873	05FRCS-4_C	.15
247926	05FRCS-4_E	25.66
246908	05MLCS1_C	.24
246909	05MLCS1_E	40.02
246910	05MLCS-2_C	.24
247930	05MLCS-2_E	40.02
246427	BERRIENS	-.61
292535	CE23CL12	.29
292536	CE23EL12	1.15
274670	CRAWF;7G	8.89
274671	CRAWF;7Y	8.99
274672	CRAWF;8U	26.93
274849	CRESC;1U	4.04
294702	CRESC;2U	3.56
274751	CRETE;1U	.2
274752	CRETE;2U	.2
274753	CRETE;3U	.2
274754	CRETE;4U	.2
274858	EASYR;U2	13.53
246397	ELKHARTH	-.29
274673	FISK ;9U	27.41
990700	FREEPT_G	4.59
299901	K-002 E	4.55
990901	L-005 E	8.75
274850	M HIL;RU	3.63
246536	MOTTVILL	-.13
293061	N-015 E	9.93
293120	N-021 C	.09
293121	N-021 E	.35
293130	N-022 C	.16
293131	N-022 E	.63

293140	N-023 C	.16
293141	N-023 E	.63
293150	N-024 C	.16
293151	N-024 E	.63
293160	N-025 C	.16
293161	N-025 E	.63
293190	O-003 C	.13
293191	O-003 E	.45
293513	O-009 C1	1.46
293514	O-009 C2	.74
293515	O-009 C3	.82
293516	O-009 E1	5.84
293517	O-009 E2	2.97
293518	O-009 E3	3.27
293655	O-023 E	18.84
293715	O-029 E	6.25
293716	O-029 E	3.42
293717	O-029 E	3.15
290007	O-033 E	1.15
293771	O-035 E	4.45
290021	O-050 E	12.57
293645	O22E	18.84
294392	P-010 E	12.61
294401	P-011 E1	5.85
294410	P-011 E2	5.85
290051	P-014 E	4.61
294500	P-020 C	2.95
294502	P-020 E	11.79
295103	P-024 C	.28
295104	P-024 E	1.13
295106	P-025 C	.28
295107	P-025 E	1.13
290053	P-026 E	1.15
294670	P-037 C	2.01
294671	P-037 E	8.02
294700	P-040 C	.3
294701	P-040 E	1.19
294763	P-046 E	5.73
290089	Q-039 C	2.15
290090	Q-039 E	5.53
290108	Q-057 E	13.91
882311	Q-066	.18
882331	Q-067B	.27
295990	R-016 C1	.9

295992	R-016 C2	.9
295991	R-016 E1	3.61
295993	R-016 E2	3.61
296335	R-033 1	5.55
296336	R-033 2	5.55
296346	R-033 3	4.02
296348	R-033 4	4.02
296827	R-079 C1	2.39
296741	R-079 C2	2.39
296828	R-079 E1	9.57
296740	R-079 E2	9.57
290294	S-036 C1	3.1
290295	S-036 E1	12.42
290298	S-037 C1	3.1
290299	S-037 E1	12.42
884891	S-062 C1	2.85
884901	S-062 C2	2.84
884911	S-062 C3	2.85
884892	S-062 E1	11.42
884902	S-062 E2	11.43
884912	S-062 E3	11.42
274679	SLINE;3U	15.51
274680	SLINE;4U	25.51
885861	T-074 1	.6
885862	T-074 2	.6
885961	T-099 C	1.45
885962	T-099 E	5.8
292416	T-127 C	.24
292417	T-127 E	40.07
886211	T-143 C1	1.88
886221	T-143 C2	1.88
886212	T-143 E1	7.53
886222	T-143 E2	7.53
886261	T-148 C	1.45
886262	T-148 E	5.8
292735	T-183 C	10.02
292736	T-183 E	40.07
292741	T-184 C	10.02
292742	T-184 E	40.07
274861	TCROP;1U	8.01
274862	TCROP;2U	15.54
246416	TWBRANCH	-.35
274802	U PAR;5U	.12
274803	U PAR;6U	.12

887641	U1-049 C	1.15
887642	U1-049 E	7.72
887741	U1-087 C	4.17
887742	U1-087 E	27.91
887751	U1-088 C	2.78
887752	U1-088 E	18.6
890511	U3-021 1	3.67
890521	U3-021 2	3.67
891021	U4-003 C	6.51
891022	U4-003 E	43.57
891131	U4-027	7.26
891171	U4-033	.13
274814	UPNOR;0U	.15
274805	UPNOR;1U	.15
274806	UPNOR;2U	.15
274807	UPNOR;3U	.15
274808	UPNOR;4U	.15
274809	UPNOR;5U	.15
274810	UPNOR;6U	.15
274811	UPNOR;7U	.15
274812	UPNOR;8U	.15
274813	UPNOR;9U	.15
274815	UPNOR;XU	.15
274816	UPNOR;YU	.15
892051	V1-022 1	14.52
892061	V1-022 2	14.52
LTF	V3-012	17.72
900371	V4-046	1.43
900381	V4-047	1.43
LTF	W2-033	22.43
902491	W2-079 C	.53
902492	W2-079 E	.87
903432	W3-046	4.24
903442	W3-046	3.92
903452	W3-046	4.24
903462	W3-046	3.92
LTF	W3-083	10.37
903791	W3-132 C	.53
903792	W3-132 E	.87
905252	W4-033 E1	.38
905262	W4-033 E2	.13
905471	W4-084	.28
905491	W4-086	.17
905501	W4-087	.3

907141	X1-045	.23
907361	X1-087	1.37
907432	X1-099 E	.31
909041	X2-019 C	13.41
LTF	X2-042	32.96
909181	X2-052	335.14
910541	X3-005 C	.31
910542	X3-005 E	.5
LTF	X3-020	12.71
910711	X3-045 1	1.21
910721	X3-045 2	1.24
LTF	X3-096	30.58
LTF	X3-097	43.37
LTF	X3-098	41.1
LTF	X4-029D	12.87
LTF	X4-041	40.61
LTF	Y1-002	57.1
LTF	Y1-004	16.28
913011	Y1-005 1	14.76
913021	Y1-005 2	14.76
LTF	Y1-007	11.31
LTF	Y1-041	12.87
913522	Y1-078 E	1.69
LTF	Y2-004	21.2
LTF	Y2-005	21.2
LTF	Y2-006	13.02
LTF	Y2-007	42.4
LTF	Y2-008	34.06
914011	Y2-010 C OP2	3.5
914012	Y2-010 E OP2	23.44

Appendix 16

Bus Number	Bus Name	Full Contribution
243858	05FR11_C	.12
243859	05FR11_E	20.07
243861	05FR12_C	.12
243862	05FR12_E	19.73
243863	05FR21_C	.12
243864	05FR21_E	21.09
243866	05FRCS22_C	.12
247924	05FRCS22_E	20.19
243870	05FRCS-3_C	.24
247925	05FRCS-3_E	40.9
243873	05FRCS-4_C	.18
247926	05FRCS-4_E	30.75
246908	05MLCS1_C	.28
246909	05MLCS1_E	48.14
246910	05MLCS-2_C	.28
247930	05MLCS-2_E	48.14
292535	CE23CL12	.29
292536	CE23EL12	1.15
274670	CRAWF;7G	8.93
274671	CRAWF;7Y	9.07
274672	CRAWF;8U	27.07
274849	CRESC;1U	4.1
294702	CRESC;2U	3.61
274751	CRETE;1U	.22
274752	CRETE;2U	.22
274753	CRETE;3U	.22
274754	CRETE;4U	.22
274858	EASYR;U2	13.6
274673	FISK ;9U	27.47
990700	FREEPT_G	4.61
299901	K-002 E	4.57
990901	L-005 E	8.88
274850	M HIL;RU	3.63
293061	N-015 E	10.06
293120	N-021 C	.09
293121	N-021 E	.35
293130	N-022 C	.16
293131	N-022 E	.63
293140	N-023 C	.16
293141	N-023 E	.63
293150	N-024 C	.16

293151	N-024 E	.63
293160	N-025 C	.16
293161	N-025 E	.63
293190	O-003 C	.13
293191	O-003 E	.45
293513	O-009 C1	1.47
293514	O-009 C2	.75
293515	O-009 C3	.82
293516	O-009 E1	5.89
293517	O-009 E2	2.99
293518	O-009 E3	3.3
293655	O-023 E	18.9
293715	O-029 E	6.3
293716	O-029 E	3.45
293717	O-029 E	3.17
290007	O-033 E	1.15
293771	O-035 E	4.51
290021	O-050 E	12.63
293645	O22E	18.9
294392	P-010 E	12.78
294401	P-011 E1	5.93
294410	P-011 E2	5.93
290051	P-014 E	4.61
294500	P-020 C	2.96
294502	P-020 E	11.84
295103	P-024 C	.28
295104	P-024 E	1.13
295106	P-025 C	.28
295107	P-025 E	1.13
290053	P-026 E	1.15
294670	P-037 C	2.03
294671	P-037 E	8.1
294700	P-040 C	.3
294701	P-040 E	1.2
294763	P-046 E	5.76
290089	Q-039 C	2.18
290090	Q-039 E	5.61
290108	Q-057 E	13.88
882311	Q-066	.18
882331	Q-067B	.27
295990	R-016 C1	.91
295992	R-016 C2	.91
295991	R-016 E1	3.63
295993	R-016 E2	3.63

296335	R-033 1	2.59
296336	R-033 2	2.59
296346	R-033 3	1.87
296348	R-033 4	1.87
296827	R-079 C1	2.42
296741	R-079 C2	2.42
296828	R-079 E1	9.66
296740	R-079 E2	9.66
290294	S-036 C1	3.16
290295	S-036 E1	12.62
290298	S-037 C1	3.16
290299	S-037 E1	12.62
884891	S-062 C1	2.9
884901	S-062 C2	2.88
884911	S-062 C3	2.9
884892	S-062 E1	11.61
884902	S-062 E2	11.62
884912	S-062 E3	11.61
274679	SLINE;3U	14.9
274680	SLINE;4U	24.71
885861	T-074 1	.6
885862	T-074 2	.6
885961	T-099 C	1.45
885962	T-099 E	5.82
292416	T-127 C	.28
292417	T-127 E	48.2
886211	T-143 C1	1.91
886221	T-143 C2	1.91
886212	T-143 E1	7.64
886222	T-143 E2	7.64
886261	T-148 C	1.45
886262	T-148 E	5.82
292735	T-183 C	12.05
292736	T-183 E	48.2
292741	T-184 C	12.05
292742	T-184 E	48.2
274861	TCROP;1U	8.03
274862	TCROP;2U	15.59
246416	TWBRANCH	-.35
274802	U PAR;5U	.13
274803	U PAR;6U	.13
887641	U1-049 C	1.17
887642	U1-049 E	7.84
887741	U1-087 C	5.

887742	U1-087 E	33.44
887751	U1-088 C	3.33
887752	U1-088 E	22.3
890511	U3-021 1	3.68
890521	U3-021 2	3.68
891021	U4-003 C	7.83
891022	U4-003 E	52.42
891131	U4-027	7.35
891171	U4-033	.14
274814	UPNOR;0U	.16
274805	UPNOR;1U	.16
274806	UPNOR;2U	.16
274807	UPNOR;3U	.16
274808	UPNOR;4U	.16
274809	UPNOR;5U	.16
274810	UPNOR;6U	.16
274811	UPNOR;7U	.16
274812	UPNOR;8U	.16
274813	UPNOR;9U	.16
274815	UPNOR;XU	.16
274816	UPNOR;YU	.16
892051	V1-022 1	14.44
892061	V1-022 2	14.44
LTF	V3-012	18.11
900371	V4-046	1.44
900381	V4-047	1.44
LTF	W2-033	13.57
902491	W2-079 C	.53
902492	W2-079 E	.87
903432	W3-046	4.25
903442	W3-046	3.94
903452	W3-046	4.25
903462	W3-046	3.94
LTF	W3-083	10.52
903791	W3-132 C	.54
903792	W3-132 E	.87
905071	W4-005 C	3.2
905072	W4-005 E	21.44
905252	W4-033 E1	.39
905262	W4-033 E2	.13
905471	W4-084	.28
905491	W4-086	.17
905501	W4-087	.3
907141	X1-045	.22

907361	X1-087	1.37
907432	X1-099 E	.31
909041	X2-019 C	13.41
LTF	X2-042	36.77
909181	X2-052	496.75
910541	X3-005 C	.3
910542	X3-005 E	.49
LTF	X3-020	13.42
910711	X3-045 1	1.2
910721	X3-045 2	1.25
LTF	X3-096	32.28
LTF	X3-097	45.77
LTF	X3-098	43.39
LTF	X4-029D	12.98
LTF	X4-041	42.87
LTF	Y1-002	55.47
LTF	Y1-004	16.36
913011	Y1-005 1	14.97
913021	Y1-005 2	14.96
LTF	Y1-007	11.36
LTF	Y1-041	12.98
913522	Y1-078 E	1.71
LTF	Y2-004	22.4
LTF	Y2-005	22.4
LTF	Y2-006	14.08
LTF	Y2-007	44.8
LTF	Y2-008	37.81
914011	Y2-010 C OP2	4.22
914012	Y2-010 E OP2	28.25