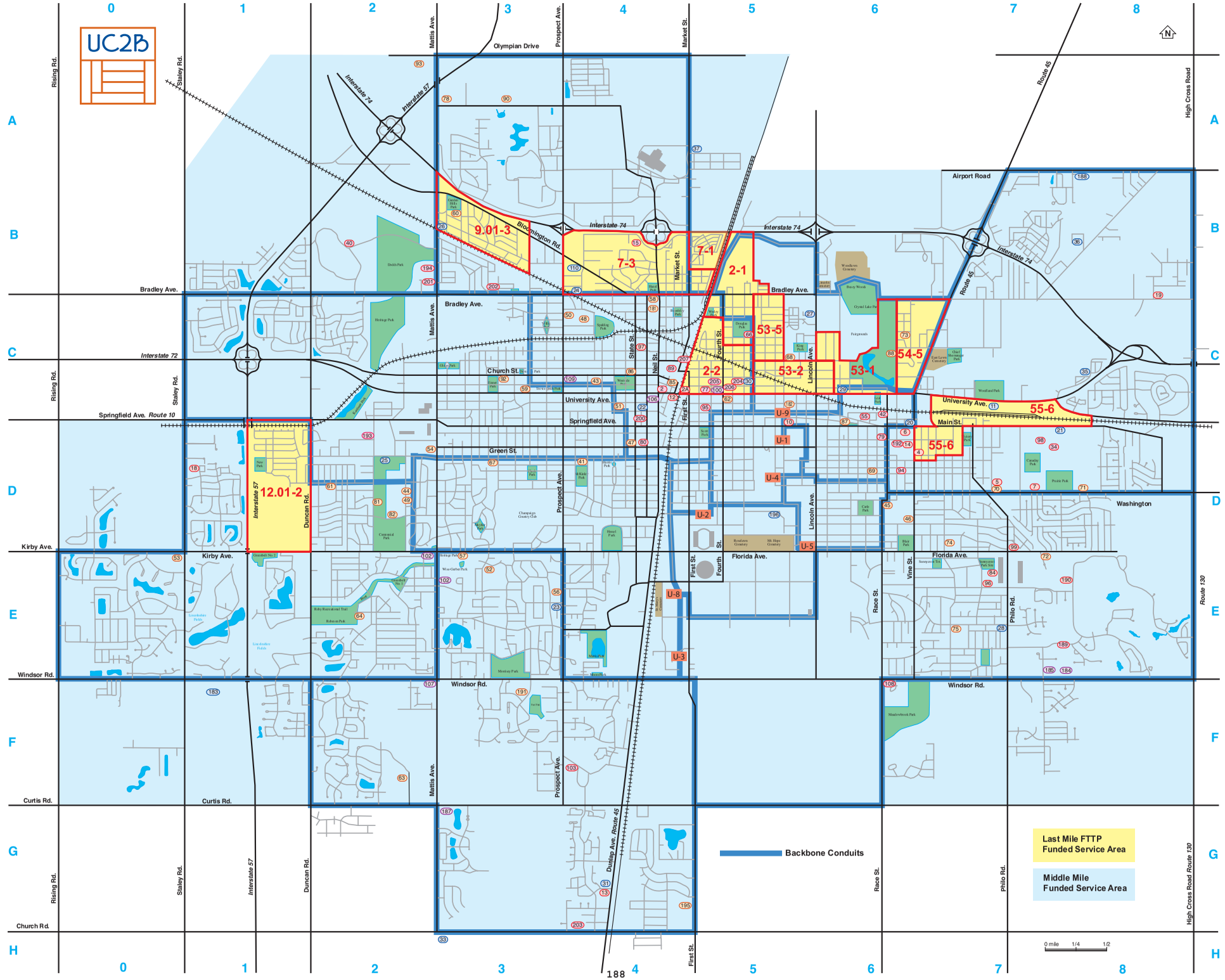
Urbana-Champaign Big Broadband Infrastructure

Attachments, Maps & Letters


UC2B
Last Mile FTTP Funded Service Area
Middle Mile Funded Service Area
Backbone Conduits
9.01-3
7-3
7-4
2-1
2-2
53-5
53-2
53-1
54-5
55-6
12.01-2
U-1
U-2
U-3
U-4
U-5
U-8
U-9
Olympian Drive
Bloomington Rd.
Interstate 74
Interstate 57
Interstate 72
Bradley Ave.
Church St.
University Ave.
Springfield Ave. Route 10
Green St.
Main St.
Kirby Ave.
Florida Ave.
Windsor Rd.
Curtis Rd.
Church Rd.
Airport Road
Washington
Route 45
Route 130
Rising Rd.
Staley Rd.
Mattis Ave.
Prospect Ave.
Market St.
State St.
Neil St.
First St.
Fourth St.
Lincoln Ave.
Vine St.
Race St.
Philo Rd.
Duncan Rd.
Dunlap Ave.
High Cross Road
Champaign Country Club
0 mile 1/4 1/2

UC2B - Urbana-Champaign Big Broadband - Critical Institutions

Government Sites

2 City of Champaign - C4
3 Champaign Public Works - B4
4 City of Urbana - D6
5 City of Urbana Public Works - D7
6 County Courthouse - D6
7 Champaign County Offices - D7
8 Regional Planning - C6
10 University of Illinois - C5
11 MTD - Main Offices - C7
12 MTD - Transportation Center - C4
13 Savoy Government - H4
14 Federal Courthouse - D6
17 Champaign Township - D4
18 Champaign Township - D1
19 Urbana Township - C8

Public Safety Sites

2A Champaign Police - C4
4 Urbana Police & Main Fire - D6
10 University of IL Police - C5
20 Champaign County Sheriff & Jail - C6
21 METCAD & Emerg. Services - D8
22 Champaign Fire Main - C4
23 Champaign Fire - Station 2 - E3
24 Champaign Fire - Station 3 - B4
25 Champaign Fire - Station 4 - D2
26 Champaign Fire - Station 5 - B3
27 Urbana Fire - N Lincoln - C5
28 Urbana Fire - Philo Road - E7
31 Savoy Police & Fire - H4
33 Willard Airport - G4
34 Youth Detention Center - D8
35 Edge Scott Fire District - C8
36 Carrol Fire District - B8
37 Eastern Prairie Fire Dist. - A5
40 Parkland Police - B2
100 Arrow Ambulance - C6
105 Pro Ambulance - C5
183 Champaign Fire - Station 6 - F1
188 Urbana Future Fire Station - B8

Medical Sites

15 C-U Public Health - B4
29 Carle Hospital - C6
29 Carle Clinic Main - C6
30 Provena Hospital - C5
102 Carle Clinic Champaign - E3
106 Christie Clinic Main - C4
107 Christie Clinic South Champaign - F2
109 The Pavillion - C4
110 Francis Nelson Health Center - B4
184 Carle Clinic SE Urbana - E7
185 Christie Clinic SE Urbana - E7
187 Carle Clinic South Champaign - G3

Senior Living Sites

2 Inman Plaza - C4
84 SunnyCrest Manor - E7
94 Urbana Senior Residence - D6
95 HACC Skelton Place - C5
96 HACC Steer Place - E7
97 HACC Washington Square - C4
98 County Nursing Home - D8
99 Florida House - E7
103 Windsor of Savoy - F4
108 Clark-Lindsay Village - F4
189 Canteberry Ridge - E8
190 Prairie Winds of Urbana - E8
193 Round Barn Manor - D2

Park District & Youth Sites

66 CPD - Douglas Center - C5
77 Moyer Boy's & Girl's Club - C5
81 CPD - Bresnan Center - D2
82 CPD - Leonard Center - D2
85 Stevick Center - C4
86 CPD - Springer Center- C4
87 UPD - Phillips Center- C6
88 UPD - Main - C6
89 Orpheum Science Museum - C4
92 CPD Hayes Center - C3

Pubic Computing Centers

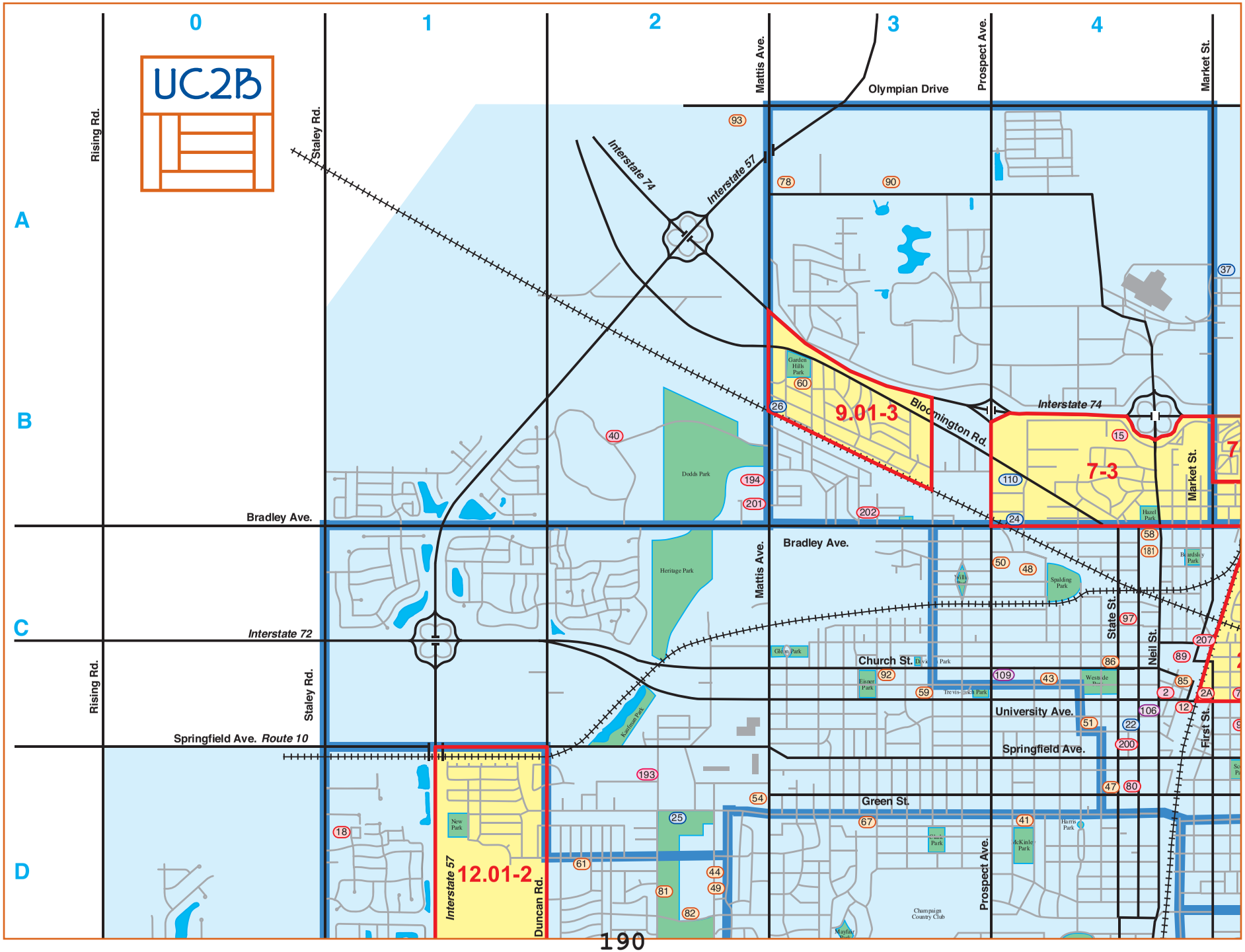
2 Inman Plaza - C4
15 C-U Public Health - B4
40 Parkland College - B2
55 Canaan Academy - C6
66 CPD - Douglas Senior Center - C5
66 Douglas Branch Public Library - C5
77 Moyer Boy's & Girl's Club - C5
79 Urbana Free Library - D6
80 Champaign Public Library - D4
84 Sunny Crest Manor - E7
85 Stevick Senior Center - C4
89 Orpheum Children's Museum - C4
92 CPD Hayes Senior Center - C3
94 Urbana Senior Residence - D6
95 HACC - Skelton Place - C5
96 HACC - Steer Place - E7
97 HACC - Washington Square - C4
98 Champaign County Nursing Home - D8
99 Florida House - E7
103 Windsor of Savoy - F4
108 Clark-Lindsay Village - F4
189 Canterbury Ridge - E8
190 Prairie Winds of Urbana - E8
192 Independent Media Center - D6
194 Job Training Center - B2
193 Round Barn Manor - D2
200 Catholic Worker House - C4
201 Restoration Urban Ministries - B2
202 Developmental Services Center - B3
203 Head Start - Savoy - G3
204 A Woman's Place - C5
204 Center for Women in Transition - C5
205 Bethel Church - C5
206 Salem Church - C5
207 TIMES Men's Emergency Shelter - C5
208 Muslim American Society Center - B8

Education & Library Sites

10 University of Illinois - C5-F5
10 University High School - C5
40 Parkland College - B2
41 Champaign Unit 4 Admin - D4
41A South Side School - D4
42 Urbana Unit 116 Admin - C6
43 Champaign Central HS - C4
44 Champaign Centennial HS - D2
45 Urbana High School - D6
46 Urbana Middle School - D6
47 Edison Middle School - D4
48 Franklin Middle School - C4
49 Jefferson Middle School - D2
50 Judah Grade/Mid/HS - C4
51 Holy Cross Grade/Middle - C4
52 St. Mathew's Grade/Middle - E3
53 Country Side School - E1
54 St Johns Lutheran School - D2
55 Canaan Academy - C6
56 Bottenfield School - E3
57 Carrie Busey School - E3
58 Stratton School - C4
59 Dr. Howard School - C3
60 Garden Hills School - B3
61 Kenwood School - D2
62 Marquette School - C5
63 Barkstall School - F2
64 Robeson School - E2
66 BT Washington School - C5
66 Douglas Branch Library - C5
67 Westview School - D3
68 King School - C5
69 Leal School - D6
71 Prairie School - D7
72 Thomas Paine - E7
73 Washington School - C6
74 Wiley School - D7
75 Yankee Ridge School - E7
78 Lincoln Trail Libraries - A3
79 Urbana Free Library - D6
80 Champaign Public Library - D4
90 U.S Army CERL - A3
93 St. Thomas Moore HS - A2
181 Unit 4 Early Learning - C4
182 WILL-AM/FM/TV - D5
191 Next Generation School - F3
194 Job Training Center - B2
195 New Savoy Grade School - H3

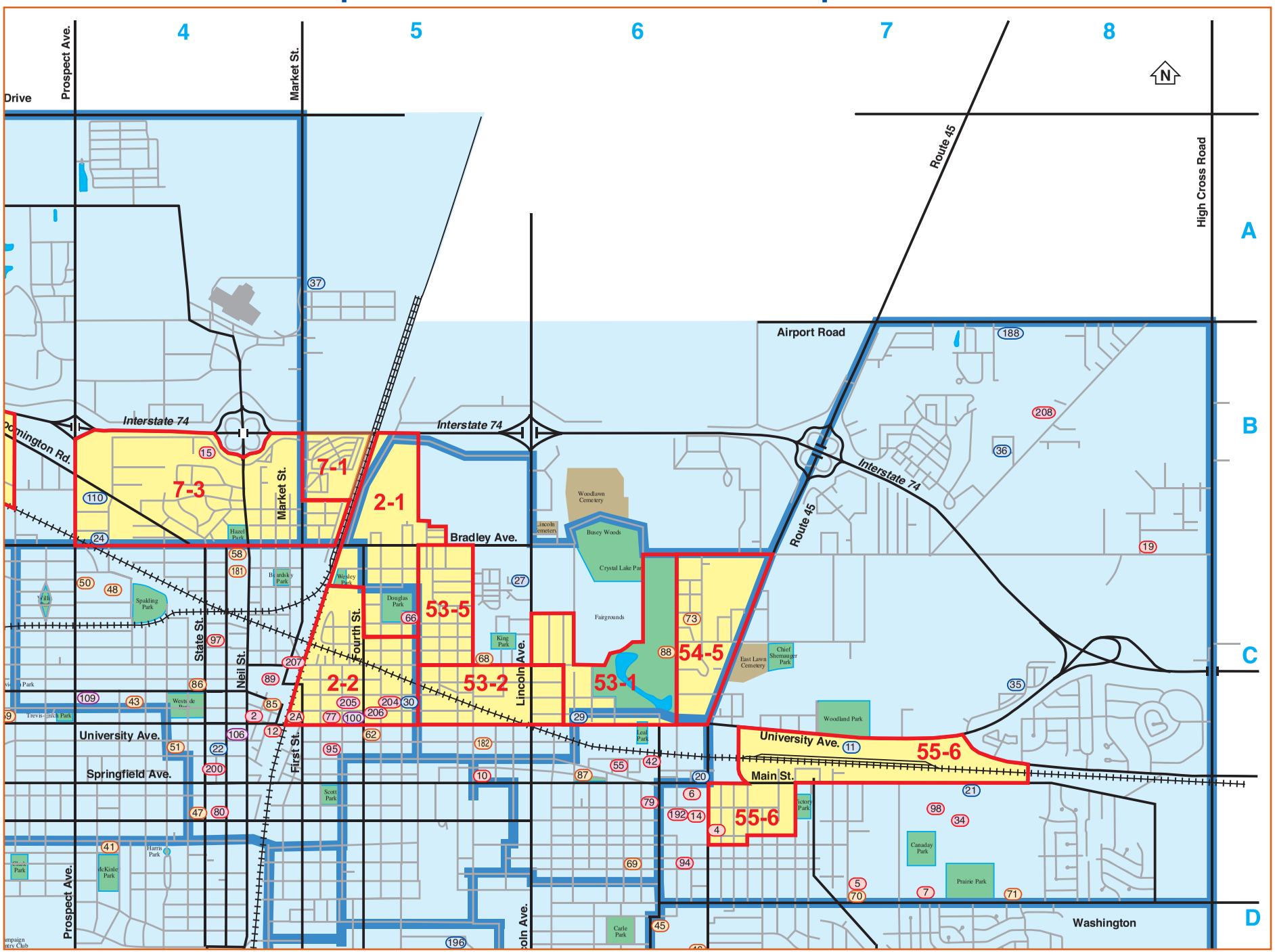
UC2B Middle Mile Proposed Funded Service Area Map

NW Quadrant



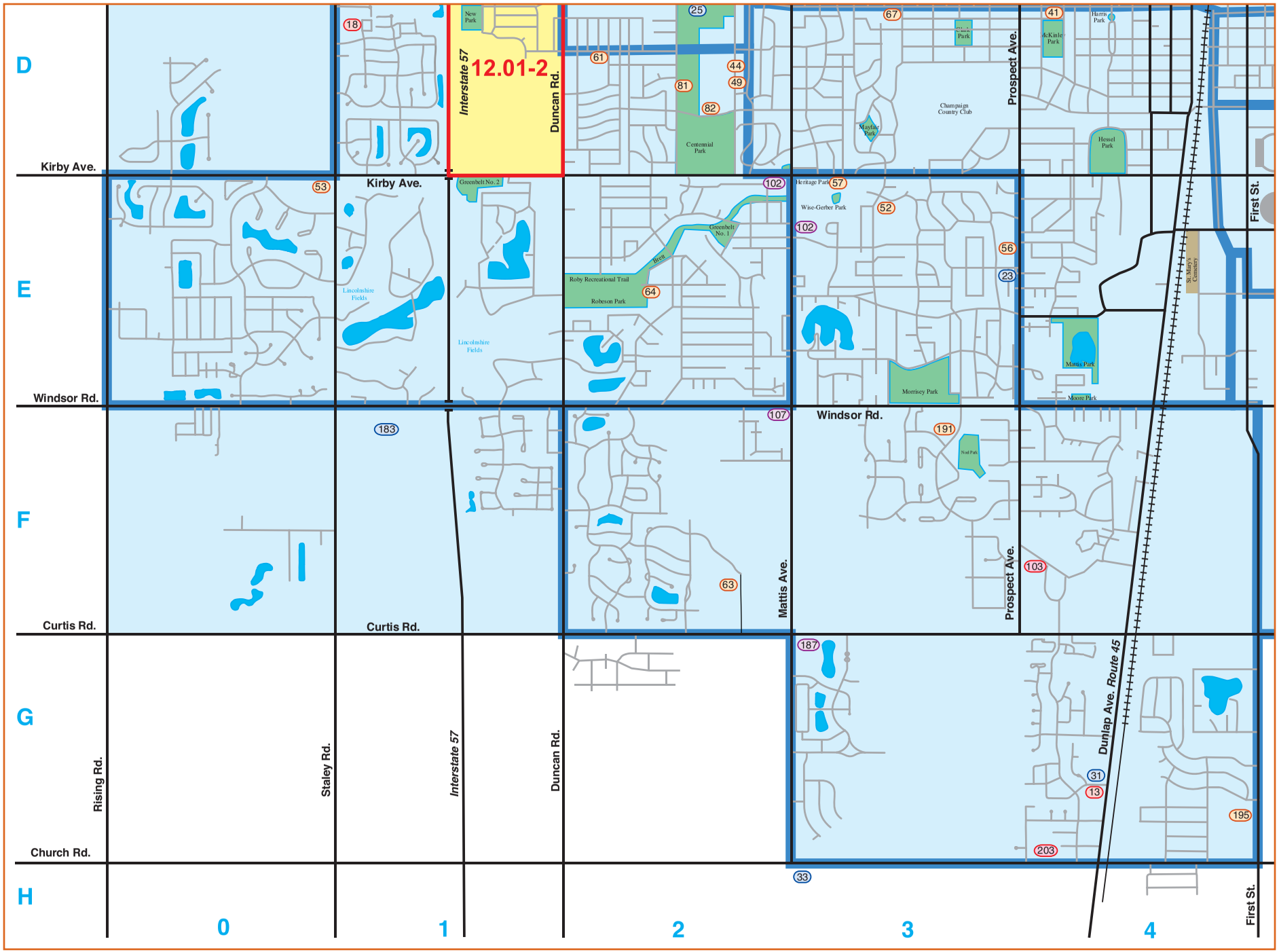
UC2B Middle Mile Proposed Funded Service Area Map

NE Quadrant



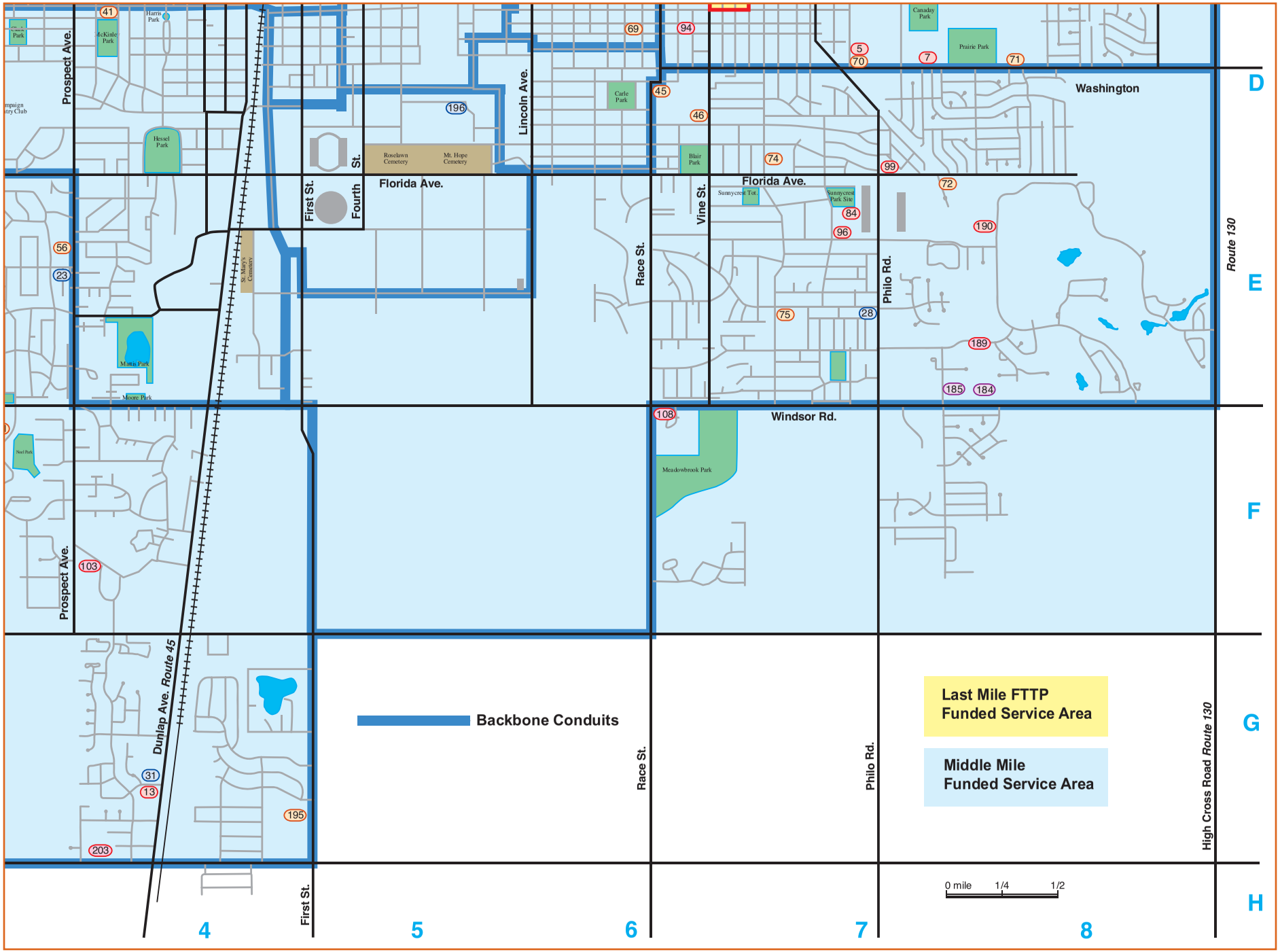
UC2B Middle Mile Proposed Funded Service Area Map

SW Quadrant



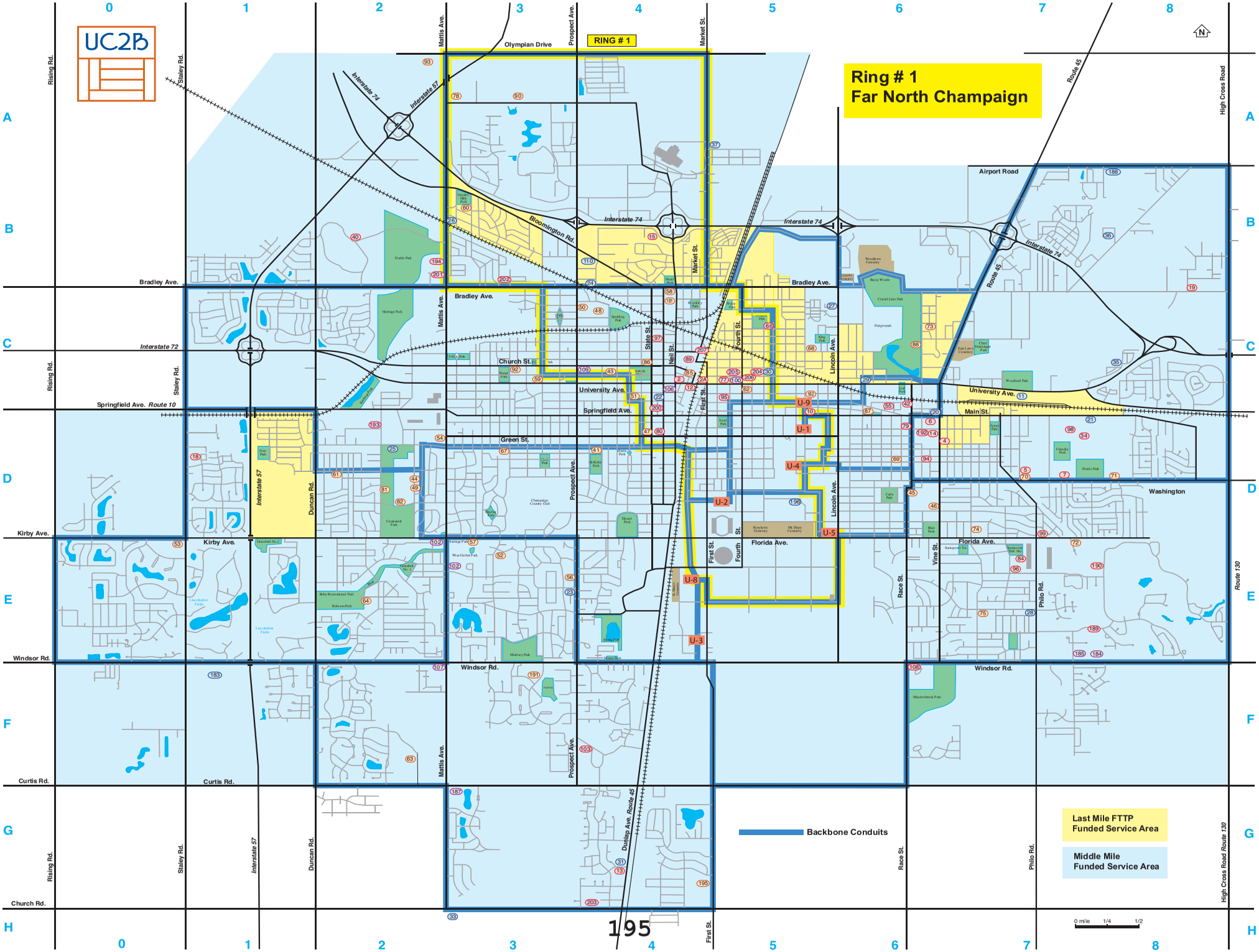
UC2B Middle Mile Proposed Funded Service Area Map

SE Quadrant



Urbana-Champaign Big Broadband

Middle Mile Fiber Ring Locations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Far North Champaign
RING # 1
Olympian Drive
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Interstate 57
Interstate 72
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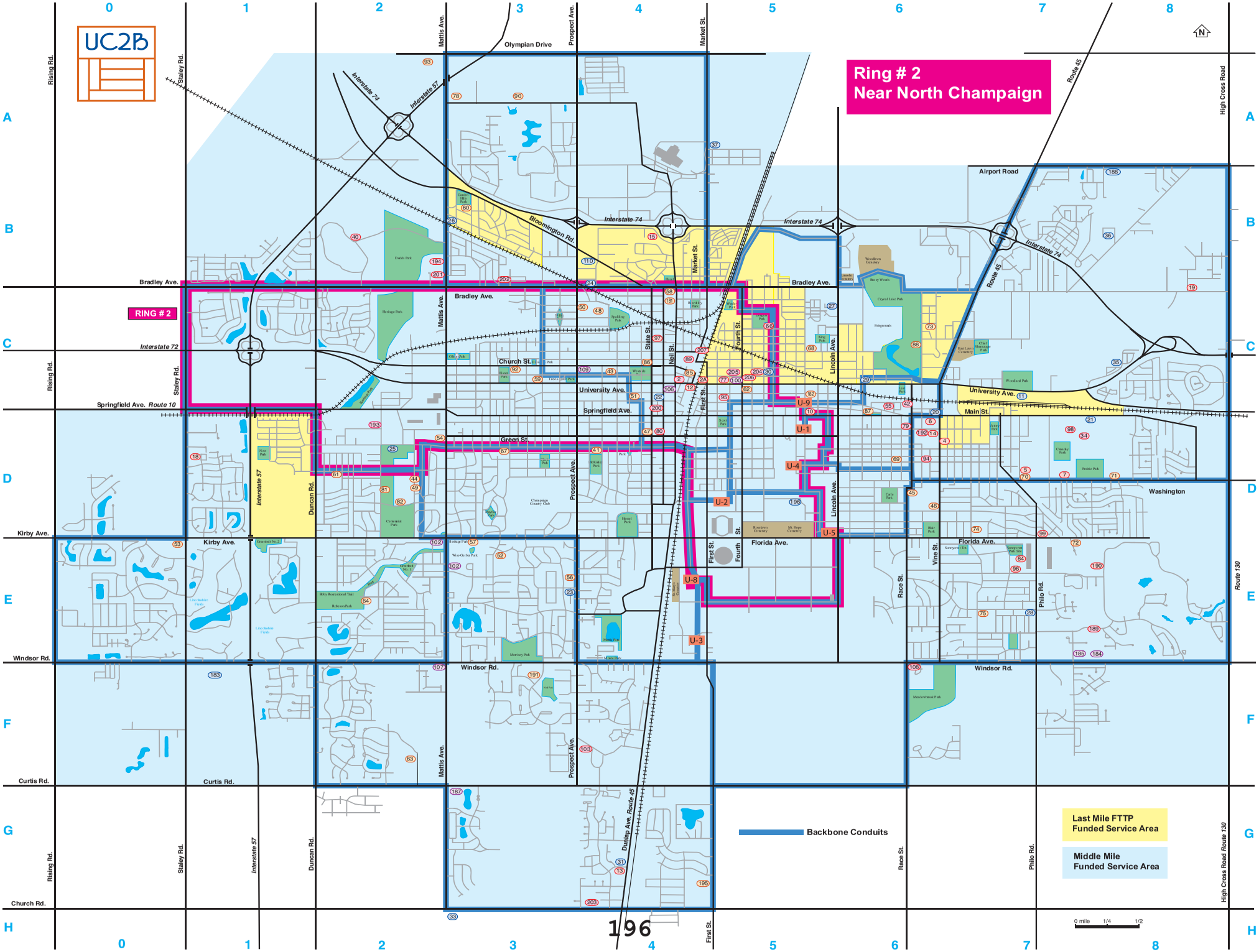
Church St.
University Ave.
Green St.
Kirby Ave.
Windsor Rd.
Curtis Rd.
Church Rd.
Airport Road
Main St.
Florida Ave.
Washington
Rising Rd.
Staley Rd.
Duncan Rd.
Mattis Ave.
Prospect Ave.
Market St.
State St.
Neil St.
First St.
Fourth St.
Lincoln Ave.
Race St.
Vine St.
Philo Rd.
Dunlap Ave. Route 45
Route 45
Route 130
High Cross Road
U-1
U-2
U-3
U-4
U-5
U-8
U-9
Backbone Conduits
Last Mile FTTP Funded Service Area
Middle Mile Funded Service Area
0 mile 1/4 1/2
195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Near North Champaign
RING # 2
Backbone Conduits
Last Mile FTTP
Funded Service Area
Middle Mile
Funded Service Area
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Bradley Ave.
Springfield Ave. Route 10
Church St.
University Ave.
Green St.
Kirby Ave.
Windsor Rd.
Curtis Rd.
Church Rd.
Florida Ave.
Main St.
Airport Road
Washington
Interstate 74
Interstate 57
Interstate 72
Route 45
Route 130
Rising Rd.
Staley Rd.
Duncan Rd.
Mattis Ave.
Prospect Ave.
Market St.
State St.
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First St.
Fourth St.
Lincoln Ave.
Race St.
Vine St.
Philo Rd.
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U-1
U-2
U-3
U-4
U-5
U-8
U-9
0 mile
1/4
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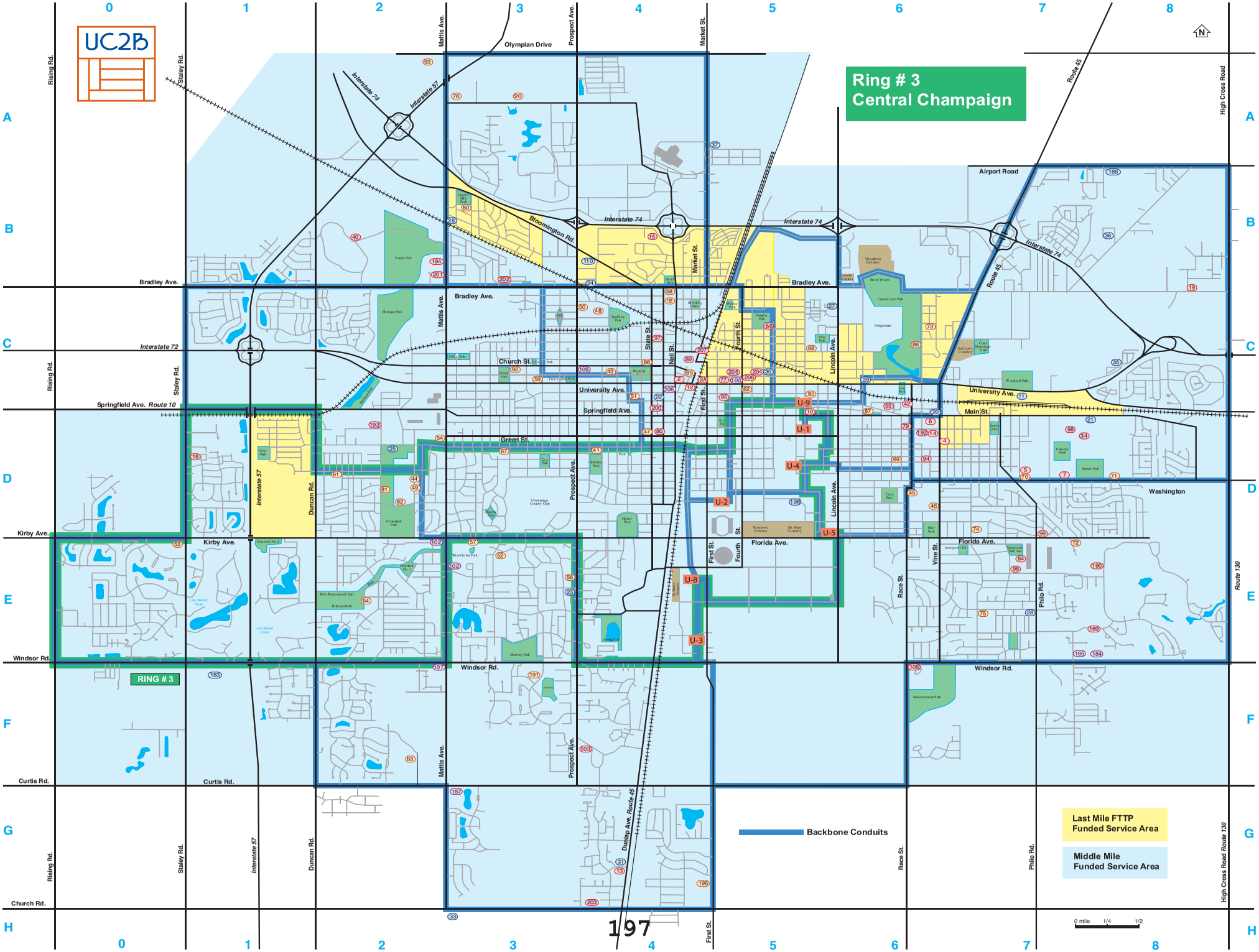
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Central Champaign
RING # 3
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Middle Mile
Funded Service Area
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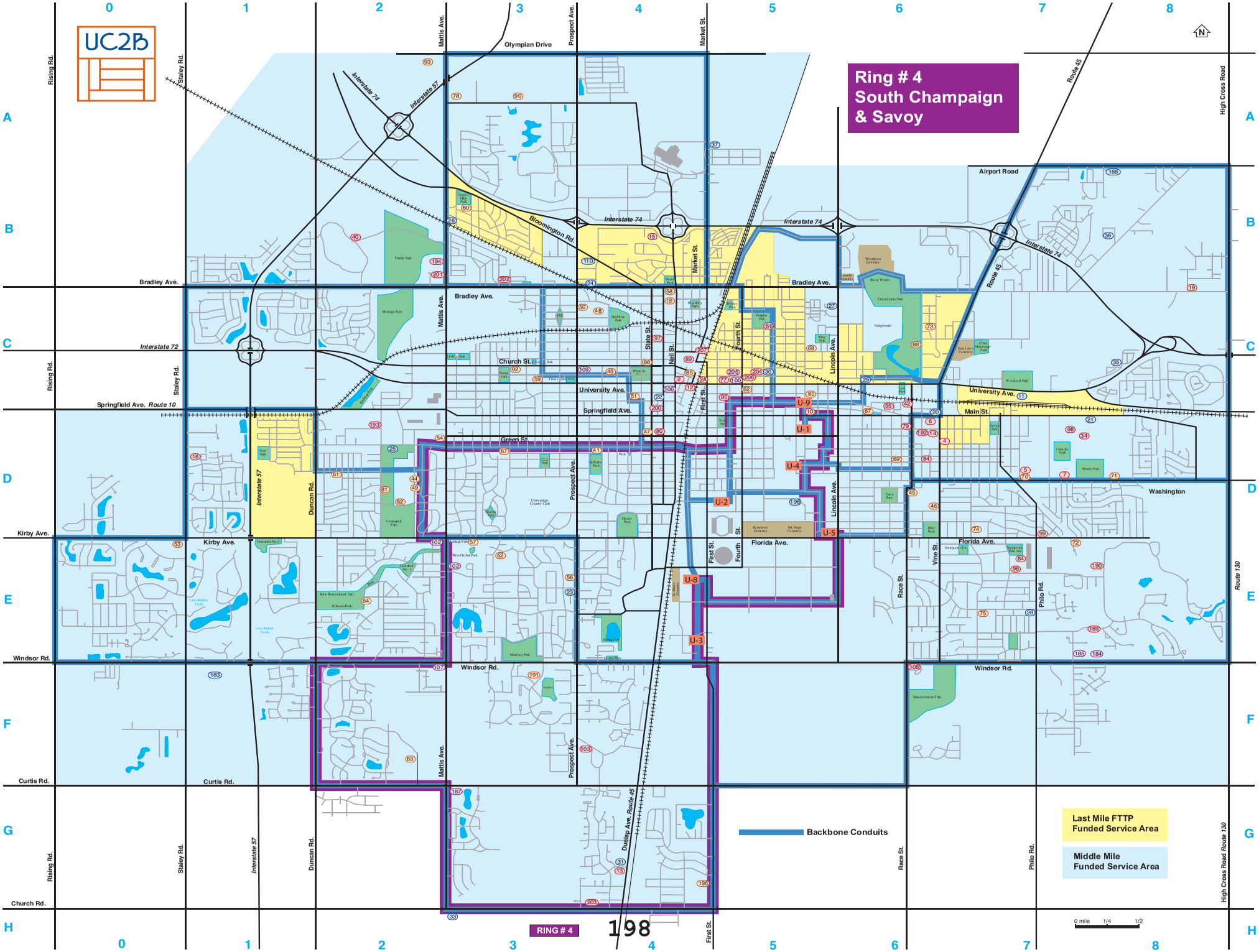
Interstate 57
Interstate 72
Route 45
Route 130
Airport Road
Bradley Ave.
Springfield Ave. Route 10
Church St.
University Ave.
Main St.
Green St.
Kirby Ave.
Florida Ave.
Windsor Rd.
Curtis Rd.
Church Rd.
Washington
Rising Rd.
Staley Rd.
Duncan Rd.
Mattis Ave.
Prospect Ave.
Market St.
State St.
Neil St.
First St.
Fourth St.
Lincoln Ave.
Vine St.
Race St.
Philo Rd.
High Cross Road
Dunlap Ave.
U-1
U-2
U-3
U-4
U-5
U-8
U-9
0 mile
1/4
1/2
197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Ring # 4
South Champaign
& Savoy
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Interstate 57
Interstate 72
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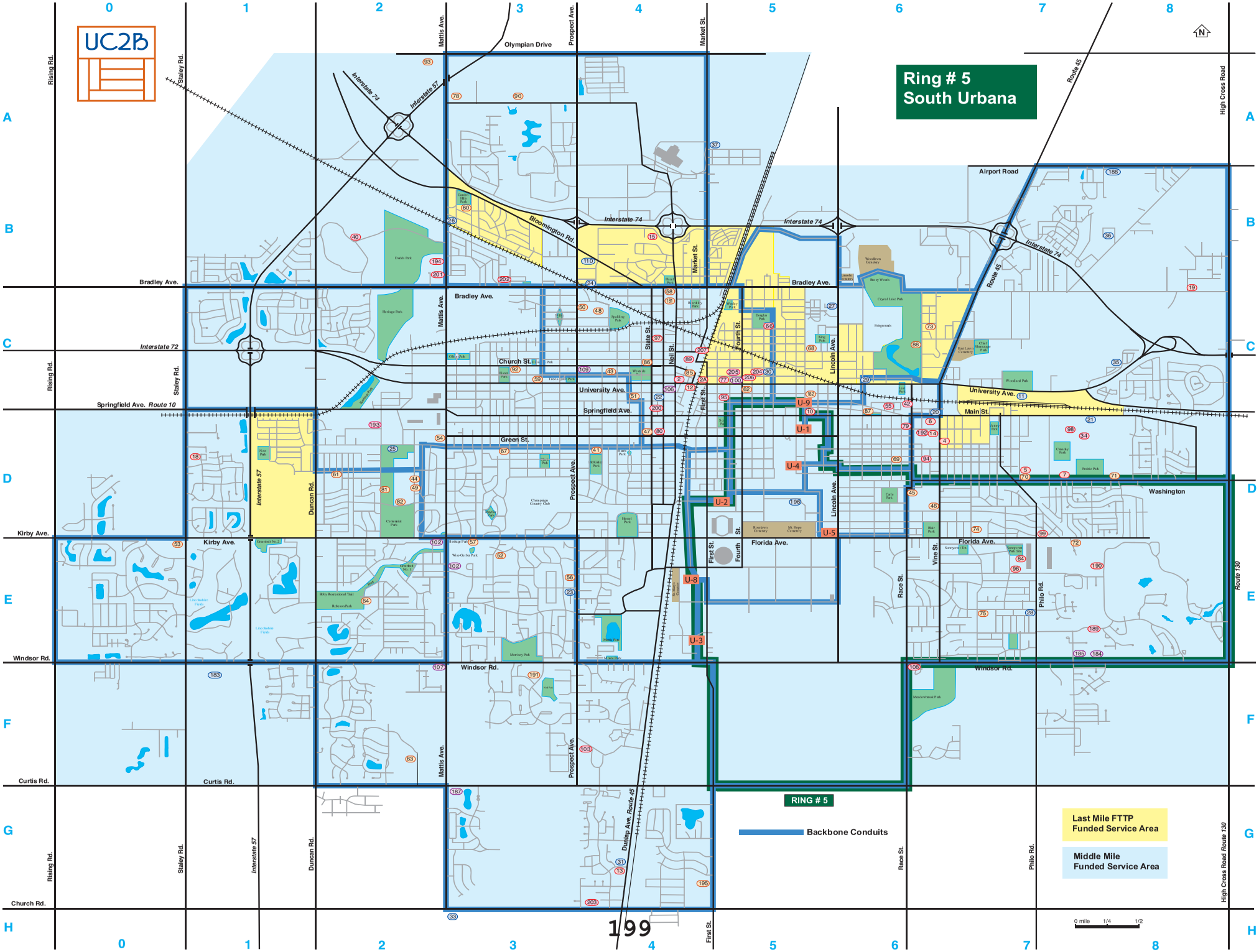
Church St.
University Ave.
Green St.
Kirby Ave.
Windsor Rd.
Curtis Rd.
Church Rd.
Florida Ave.
Main St.
Airport Road
Washington
Rising Rd.
Staley Rd.
Mattis Ave.
Prospect Ave.
Market St.
State St.
Neil St.
First St.
Fourth St.
Lincoln Ave.
Duncan Rd.
Dunlap Ave. Route 45
Race St.
Vine St.
Philo Rd.
Route 45
Route 130
High Cross Road Route 130
U-1
U-2
U-3
U-4
U-5
U-8
U-9
Backbone Conduits
Last Mile FTTP
Funded Service Area
Middle Mile
Funded Service Area
RING # 4
198
0 mile
1/4
1/2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Ring # 5
South Urbana
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Interstate 57
Interstate 72
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Springfield Ave. Route 10
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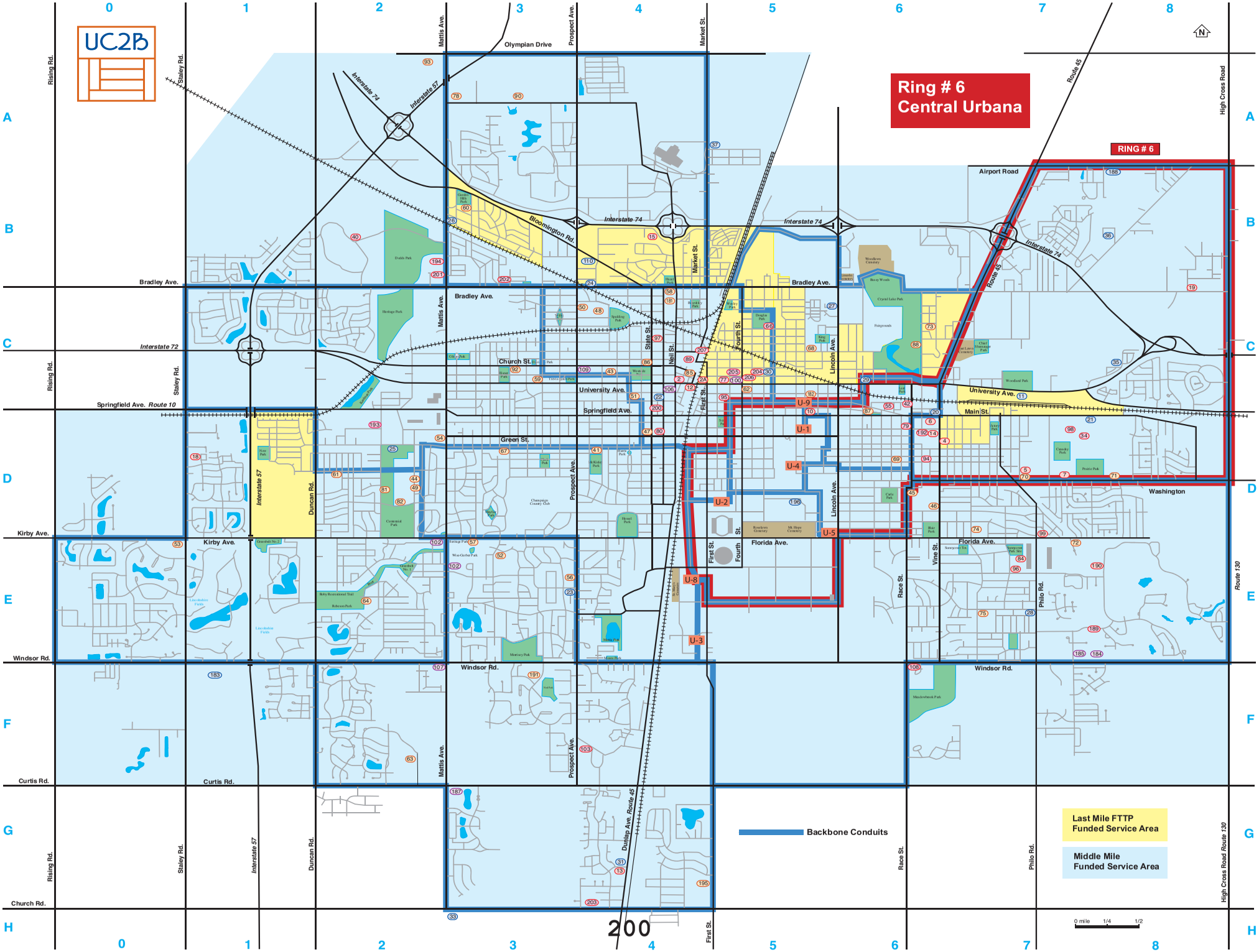
University Ave.
Green St.
Main St.
Kirby Ave.
Florida Ave.
Windsor Rd.
Curtis Rd.
Church Rd.
Airport Road
Washington
Route 45
Route 130
High Cross Road
Rising Rd.
Staley Rd.
Mattis Ave.
Prospect Ave.
Market St.
State St.
Neil St.
First St.
Fourth St.
Lincoln Ave.
Vine St.
Race St.
Philo Rd.
Duncan Rd.
Dunlap Ave.
U-1
U-2
U-3
U-4
U-5
U-8
U-9
RING # 5
Backbone Conduits
Last Mile FTTP Funded Service Area
Middle Mile Funded Service Area
0 mile
1/4
1/2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Ring # 6
Central Urbana
RING # 6
Backbone Conduits
Last Mile FTTP
Funded Service Area
Middle Mile
Funded Service Area
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Airport Road
Bradley Ave.
Springfield Ave. Route 10
Church St.
University Ave.
Main St.
Green St.
Kirby Ave.
Florida Ave.
Windsor Rd.
Curtis Rd.
Church Rd.
Washington
Interstate 74
Interstate 72
Interstate 57
Route 45
Route 130
Mattis Ave.
Prospect Ave.
Market St.
Rising Rd.
Staley Rd.
Duncan Rd.
Dunlap Ave.
State St.
Neil St.
First St.
Fourth St.
Lincoln Ave.
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U-2
U-3
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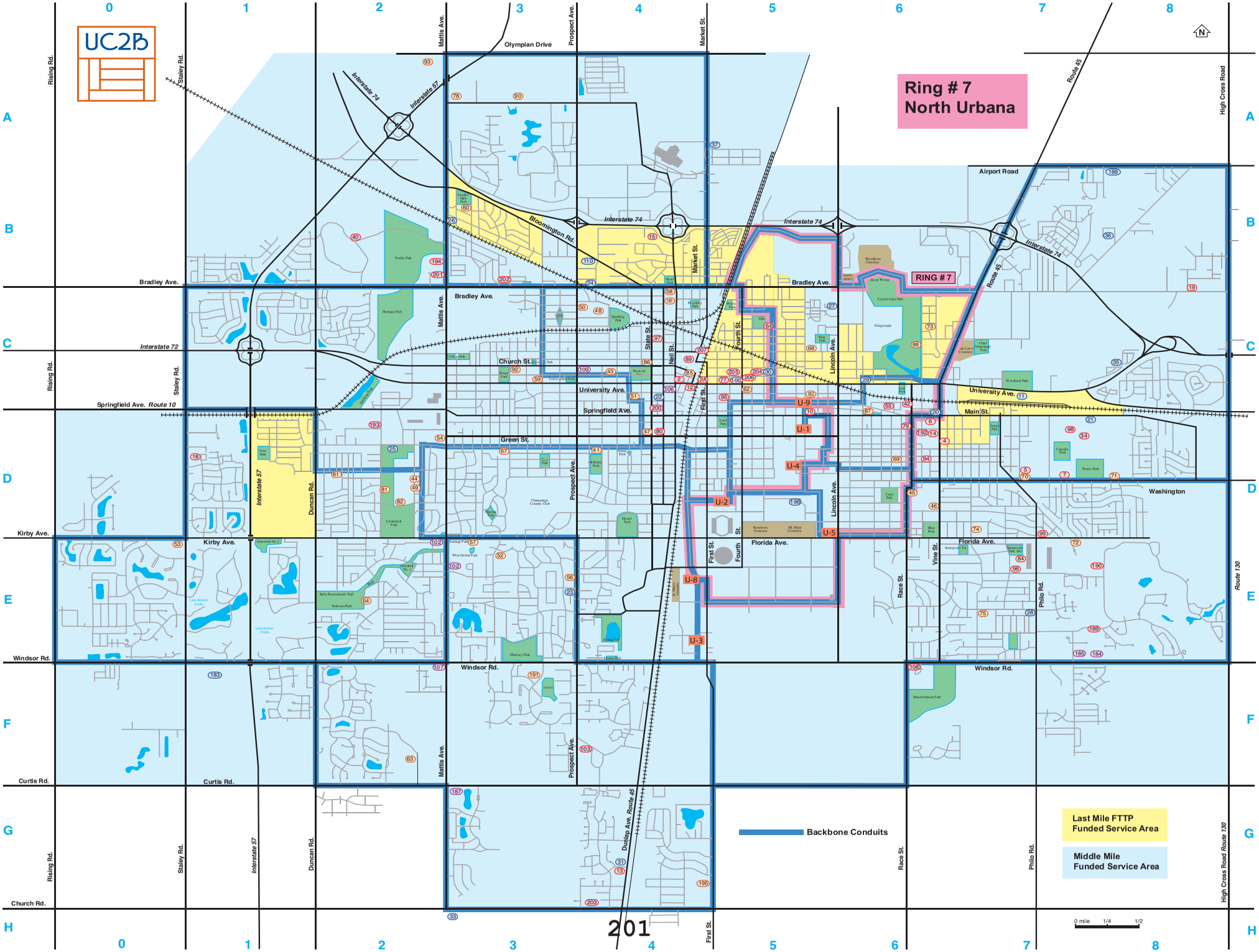
U-5
U-8
U-9
200


UC2B
Ring # 7
North Urbana
RING # 7
Olympian Drive
Bloomington Rd.
Interstate 74
Interstate 57
Interstate 72
Airport Road
Route 45
Bradley Ave.
Springfield Ave. Route 10
Church St.
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Vine St.
Philo Rd.
High Cross Road
Route 130
Dunlap Ave. Route 45
U-1
U-2
U-3
U-4
U-5
U-8
U-9
Backbone Conduits
Last Mile FTTP
Funded Service Area
Middle Mile
Funded Service Area
0 mile
1/4
1/2

Attachment A - Proposed Last Mile Service Offerings

The UC2B Last Mile Services will be the same in all Service Areas

Name of Tier	Advertised Speeds		Average Speeds		Average Latency	Pricing Plan $ Per Month
	Downstream Mbps	Upstream Mbps	Downstream Mbps	Upstream Mbps	@ end-user CPE milliseconds	
Residential						
UC2B Entry Level Speed Internet / CNS	5 / 100	5 / 100	5 / 100	5 / 100	<10 ms	$19.99
UC2B Maximum Speed Internet / CNS	100 / 100	100 / 100	100 / 100	100 / 100	<10 ms	See Note # 3
ISP Entry Level Speed Internet / CNS	5 / 100	5 / 100	5 / 100	5 / 100	<10 ms	To be determined by ISP's
ISP Maximum Speed Internet / CNS	1000 / 1000	1000 / 1000	1000 / 1000	1000 / 1000	<10 ms	To be determined by ISP's
Non-Profit Anchor Institution, School, Library, Church, Senior Center						
UC2B Entry Level Speed Internet / CNS	5 / 100	5 / 100	5 / 100	5 / 100	<10 ms	$19.99
UC2B Maximum Speed Internet / CNS	100 / 100	100 / 100	100 / 100	100 / 100	<10 ms	See Note # 3
ISP Entry Level Speed Internet / CNS	5 / 100	5 / 100	5 / 100	5 / 100	<10 ms	To be determined by ISP's
ISP Maximum Speed Internet / CNS	1000 / 1000	1000 / 1000	1000 / 1000	1000 / 1000	<10 ms	To be determined by ISP's
For-Profit Business						
ISP Entry Level Speed Internet / CNS	5 / 100	5 / 100	5 / 100	5 / 100	<10 ms	To be determined by ISP's
ISP Maximum Speed Internet / CNS	1000 / 1000	1000 / 1000	1000 / 1000	1000 / 1000	<10 ms	To be determined by ISP's

Note # 1 - All subscribers will always have the full speed of their CPE's Ethernet port to the UC2B Community Network Service (CNS)

Note # 2 - Advertised and Average Speeds are indicated by Internet bandwidth / UC2B Community Network Service (CNS) bandwidth.

Note # 3 - Unless there are no commercial ISP's providing services, UC2B does not plan to offer services to for-profit organizations or above entry level for residential or non-profit organizations.

Note # 4 - ISP's will determine their own pricing and service tiers for Internet bandwidth, but their subscribers will have full CPE port speed to the UC2B Community Network Service (CNS) due to local peering.

Attachment B – Proposed Middle Mile Service Offerings

The UC2B Middle Mile Service Offerings will be the same throughout the Service Area

Service Offering	Distance Band or Point to Point	Ethernet Port Speed (Mbps)	Minimum Peak Load Network Capacity (Mbps)	Monthly Pricing	Other
UC2B Community Network Service (CNS) Connection 100 Mbps Port	Any point on the UC2B MM Network	100	10,000	$19.99	Critical Institutions Only
UC2B Community Network Service (CNS) Connection 1 Gbps Port	Any point on the UC2B MM Network	1,000	10,000	$39.99	Critical Institutions Only
Private VLAN Connection 10 Mbps Port	Any point on the UC2B MM Network	10	10,000	$100	No CIR or VLAN Charge
Private VLAN Connection 100 Mbps Port	Any point on the UC2B MM Network	100	10,000	$400	No CIR or VLAN Charge
Private VLAN Connection 1 Gbps Port	Any point on the UC2B MM Network	1,000	10,000	$1,200	No CIR or VLAN Charge

Anchor Institutions can acquire their Internet connectivity via the Middle Mile Network. The difference in port speeds would affect only their community network connectivity, not the Internet bandwidth available to them.

Organizations can purchase Layer 2 transport (VLAN) from any location on any ring to one or more locations on any ring by paying only for the WDM-PON port charges indicated above.

All core elements of the network are non-blocking and are interconnected at 10 Gbps.

Question 22 – Middle Mile Service Offerings

There will be a full compliment of services provided by UC2B - traditional Internet services, private VLAN services and dark fiber services. Each type of service meets a different need in the community and without providing all three, not all of the community's needs can be met.

For a minimum of the first five years of operations, the UC2B Consortium will deliver the UC2B Community Network Service (CNS), which will offer public Internet access to libraries, hospitals, educational institutions and public safety agencies at economical rates. The Vice Chancellor for Public Engagement of the University of Illinois at Urbana-Champaign, has agreed to provide $60,000 a year for 5 years to be used to purchase one Gbps worth of public Internet bandwidth. His letter making this pledge is page 24 in the collection of letters attached to this application for Question 41.

UC2B CNS will provide public Internet access to the 2,500 underserved households in our Last Mile FTTH pilot project and also to the 137 Critical Institutions that we seek to connect to the UC2B Middle Mile network.

Free bandwidth does not equate to free service, but having the Vice Chancellor's commitment for five years has allowed us to be very aggressive in our pricing of the UC2B CNS. In doing so, we anticipate that the CNS adoption rate among FTTH households, libraries, hospitals, educational institutions and public safety agencies will be high, which in turn, strengthens the sustainability of this network as well as the other UC2B projects.

The UC2B backbone rings have been carefully planned to accommodate very short lateral fiber builds to the greatest number of schools, pubic safety and medical facilities. In creating the pricing and service plans, and fiber ring design, the objective was to maximize the participation of "Critical Institutions" on the UC2B network.

We encourage UC2B CNS subscribers to fully leverage the available bandwidth in lawful ways. Over the initial five years, we project that we have enough bandwidth to afford us time to build a sufficient subscriber base that will in turn sustain the service beyond five years.

The UC2B Middle Mile network is also about providing business services. There is no differentiation in our wholesale ISP rates between residential and business subscribers. They all utilize the same WDM-PON network architecture, and whether a business or a homeowner wants a 100 Mbps or a 1 Gbps connection to the network, the wholesale ISP rates are the same for both.

The UC2B network will also offer managed Private VLAN (layer 2) services as well. Should a medical group with multiple facilities in the community want a secure and private link between their facilities, they will be able to purchase an aggressively priced layer-2 transport VLAN. The charges will be determined by the port speed of each

location connected to the VLAN, but there will be no Committed Information Rate (CIR) charges. The entire UC2B network backbone is non-blocking, so if two medical facilities need to make a large data transfer between them and each have a 100 Mbps port, they would realized almost that full 100 Mbps bandwidth. Transmission protocol overheads keep the full speed of a port from ever being realized, but nothing on the UC2B network would slow the transfer down.

As was mentioned in the previous section, our three local library branches will use UC2B "dark fiber" to connect to the regional library system where their circulation transactions are processed. Both Urbana and Champaign will also utilize UC2B "dark fiber" to connect their various public safety and administrative facilities to each other as well.

Finally, a local service provider - Champaign Telephone Company (CTC)) has invested in UC2B by committing to purchase dark fiber that will be used to connect many of their customers to Internet and phone services provided by CTC. Once connected to UC2B fiber, many of their customers will go from T-1 connections that do not meet their needs to 100 Mbps or 1 Gbps connections that promise to meet their needs for years to come.

UC2B will make ISP, layer-2 or dark fiber services available to any organization for any lawful purpose.

Attachment C

Existing Last Mile Broadband Service Providers

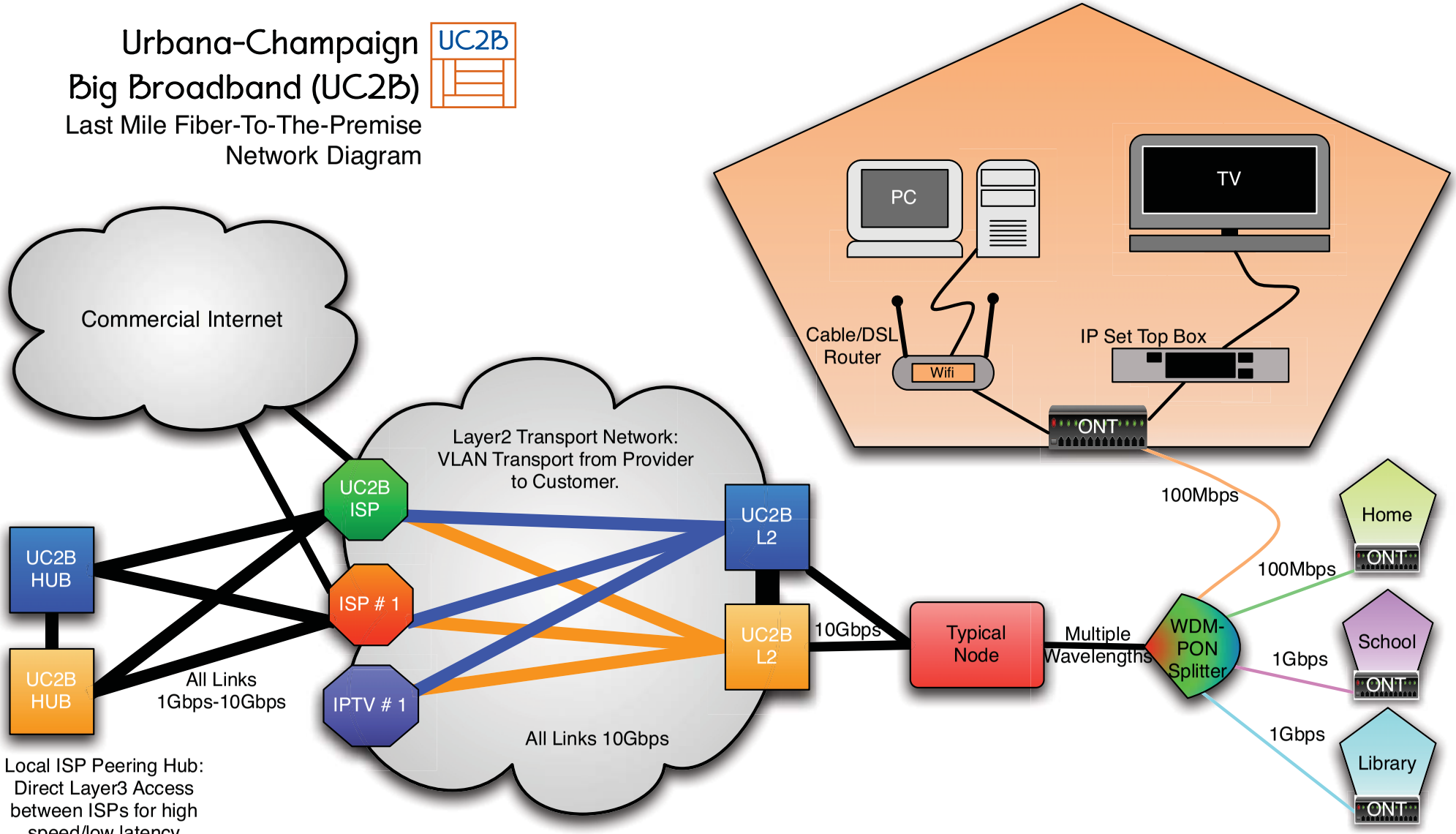
			residential		business		
Provider	Technology	Service Tier	downstream /upstream	price	downstream/ upstream	price	comments
Volo	wireless	basic	250MB/day	$ 32.00	250	$ 32.00	$300 installation fee
		advanced	500MB/day	$ 50.00	500MB/day	$ 50.00	$350 installation fee
Comcast	cable	Economy	1MB/384K	$ 24.95	6MB/1MB	$ 59.95	
		Performance	12MB/2MB	$ 42.95			
		Blast!	16MB/2MB	$ 52.95	16MB/2MB	$ 89.95	
AT&T	DSL	basic	768K/384K	$ 19.95			
		express	1.5MB/384K	$ 25.00	1.5MB/384K	$ 35.00	
		pro	3MB/512K	$ 30.00	3MB/512K	$ 40.00	
		elite	6MB/768K	$ 35.00			

Attachment C
Existing Middle Mile Broadband Providers

Provider	Technology	Service Tier	Point-to-Point	Minimum Peak Load Network Bandwidth Capacity	Pricing	Comments
AT&T	Ethernet	bronze	100MB	N/A	$ 475.00	port charge
			1GB	N/A	$ 850.00	port charge
			CIR - 100MB	100MB	$ 700.70	
			CIR - 1GB	1GB	$ 1,004.25	
		silver	100MB	N/A	$ 475.00	port charge
			1GB	N/A	$ 850.00	port charge
			CIR - 100MB	100MB	$ 818.26	
			CIR - 1GB	1GB	$ 1,189.68	
Paetec	Ethernet	1 YR	100MB	100MB	$ 600.00	Install fees not included
			1GB	1GB	$ 2,000.00	
		3 YR	100MB	100MB	$ 500.00	Install fees not included
			1GB	1GB	$ 1,800.00	
		5YR	100MB	100MB	$ 425.00	Install fees not included
			1GB	1GB	$ 1,530.00	

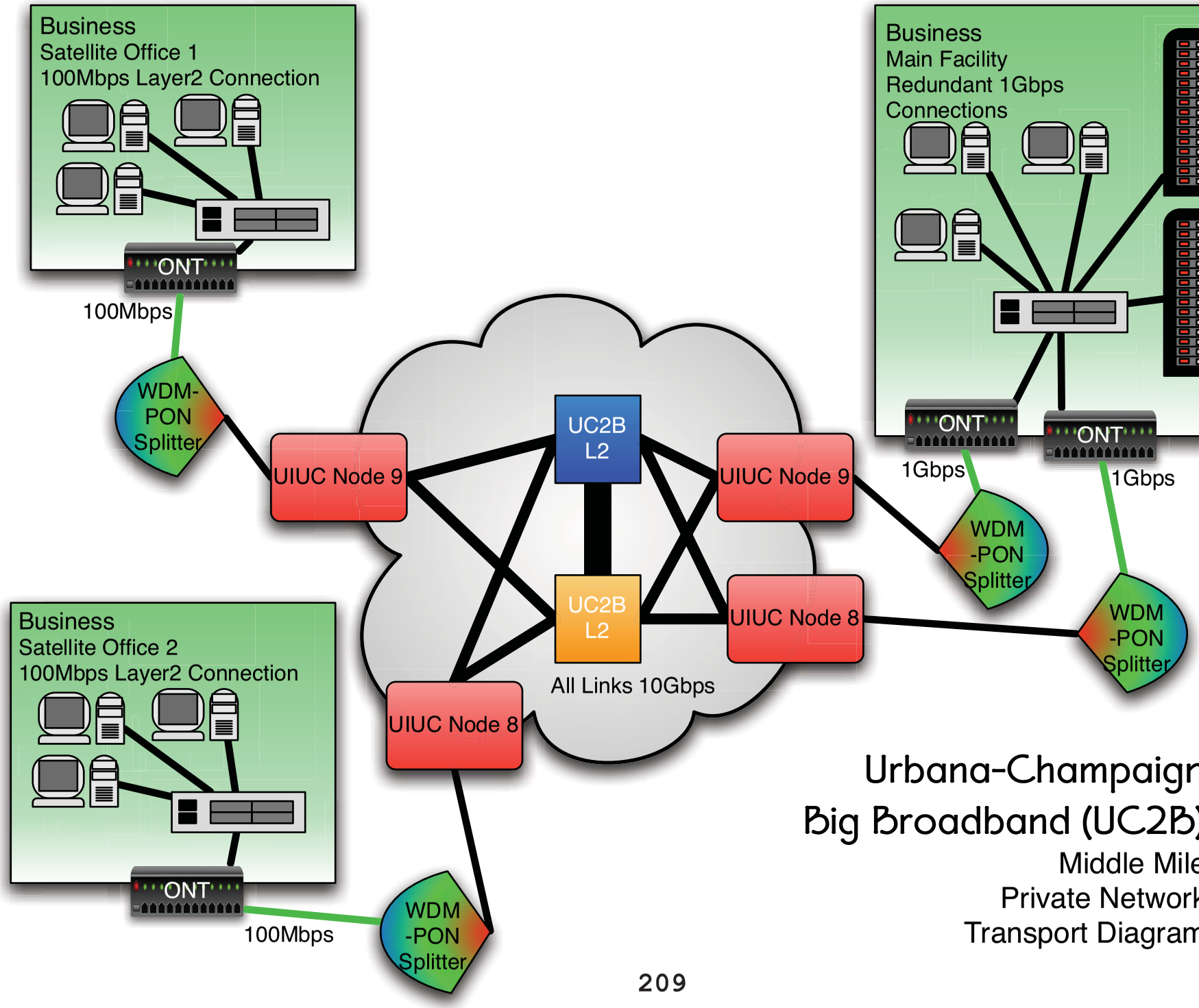
Urbana-Champaign Big Broadband (UC2B)

Last Mile Fiber-To-The-Premise Network Diagram



Local ISP Peering Hub: Direct Layer3 Access between ISPs for high speed/low latency service to local businesses and institutions.

By: hardenrm@illinois.edu



Urbana-Champaign Big Broadband (UC2B)

Middle Mile Private Network Transport Diagram

By: hardenrm@illinois.edu

Network Design and Implementation Plan Certification (to be complete for projects requesting more than $1 million in federal assistance)

U.S. Department of Agriculture and U.S. Department of Commerce
BIP and BTOP Program

We the undersigned, certify that the proposed broadband system will work as described in the System Design and Network Diagram sections, and can deliver the proposed services outlined in the Service Offerings Section. Moreover, the system, as designed, can meet the proposed build-out timeframe based on the resources designated in Project Viability Section, and will be substantially complete in two years, and complete within three years.

8·13·09
(Date)

Walter K. Knorr
(Authorized Representative's Signature)

Walter K. Knorr, Comptroller
Name:

Comptroller
Title:

August 10, 2009
(Date)

(Certifying Engineer's Signature)

Andrew Afflerbach, P.E.
Name:

Director of Engineering/CTO
Title:
CTC

ATTACHMENT E - PROJECT PLAN (KEY PHASES AND MILESTONES TO DEMONSTRATE DEGREE OF COMPLETION)

- Use the following table to list the major network build-out phases and milestones that can demonstrate that your entire project will be substantially complete by the end of Year 2 and fully complete by the end of Year 3. This is to be done at the aggregate level (combining all proposed funded service areas.)
- Indicate how the milestones listed below will demonstrate these completion objectives. The applicant should consider such project areas as: a) network design; b) securing all relevant licenses and agreements; c) site preparation; d) equipment procurement; e) inside plant deployment; f) outside plant deployment; g) equipment deployment; h) network testing; i) network complete and operational. The applicant may provide any other milestones that it believes showcase progress.
- Project inception (Year 0) starts at the date when the applicant receives notice that the project has been approved for funding.
- In the table, provide any information (e.g., facts, analysis) to: a) demonstrate the reasonableness of these milestones; b) substantiate the ability to reach the milestones by the quarters indicated.
- On a separate sheet, describe the key challenges, if any, to a timely completion of the project, including any applicable mitigation plans.

Time Period	Quarter	List All Relevant Milestones	Support for Reasonableness/Data Points
Year 0	-	• Draft RFP for engineering and construction for Service Area (SA) #1, roughly 57% of each: Main Urbana & Main Champaign.	• Funding announce in 4th quarter of year 0
Year 1	Qtr. 1	• Post RFP for engineering and construction of SA #1	• RFP details defined in parallel to award being announced
	Qtr. 2	• Award engineering and construction RFP for SA #1	• The University is familiar with the RFP process and commands a quick return
	Qtr. 3	• Engineering & construction in SA #1 begins	• Prime construction season
	Qtr. 4	• First UC2B customers online	• engineering, installation and testing runs in parallel
Year 2	Qtr. 1	• RFP for SA #2 - 4 awarded	• RFPs written in parallel to SA #

	Qtr. 2	• Engineering & construction in SA #2 (remaining 43% of Urbana &	• First thaw - construction begins
	Qtr. 3	• SA #2 construction	• Construction continues
	Qtr. 4	• Project Complete: SA #2 - 4 customers online	• engineering, installation and testing runs in parallel
Year 3	Qtr. 1	•	•
	Qtr. 2	•	•
	Qtr. 3	•	•
	Qtr. 4	•	•

UC2B Last Mile Main Champaign

Infrastructure Funds	Year 0	Year 1				Year 2				Year 3				Year 4				Year 5			
		Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
Infrastructure Funds Advanced (estimate)					$2,736,000				$2,064,000												
Percentage of Total Funds					8.77%				6.62%												
Entities Passed & %																					
Households					1065				803												
Percentage of Total Households					57%				43%												
Businesses					0				20												
Percentage of Total Businesses									30%												
Strategic institutions					0				11												
Percentage of Total Institutions									100%												

Census Blocks included:	2/1, 2/2, 7/1, 7/3
Total service area Households:	1868
Total Service Area Businesses:	68
Total Service Area Strategic Institutions:	11
Total FTTH Budget:	$12,000,000
Total Funds for SA:	$4,800,000
Total MM Budget	$31,200,000

UC2B Last Mile Main Urbana

Infrastructure Funds	Year 0	Year 1				Year 2				Year 3				Year 4				Year 5			
		Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
Infrastructure Funds Advanced (estimate)					$1,710,000				$1,290,000												
Percentage of Total Funds					5.48%				4.13%												
Entities Passed & %																					
Households					675				509												
Percentage of Total Households					57%				43%												
Businesses					0				23												
Percentage of Total Businesses									30%												
Strategic institutions					0				5												
Percentage of Total Institutions									100%												

Census Blocks included:	53-1, 53-2, 53-5, 54-5
Total service area Households:	1184
Total Service Area Businesses:	76
Total Service Area Strategic Institutions:	5

Total FTTH Budget:	$12,000,000
Total Funds for SA:	$3,000,000
% Total Funds:	25%
Total MM Budget	$31,200,000

UC2B Last Mile 9.01-3

Infrastructure Funds	Year 0	Year 1				Year 2				Year 3				Year 4				Year 5			
		Qtr 1	Qtr2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr2	Qtr 3	Qtr 4	Qtr 1	Qtr2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
Infrastructure Funds Advanced (estimate)									$1,800,000												
Percentage of Total Funds									5.77%												
Entities Passed & %																					
Households									700												
Percentage of Total Households									100%												
Businesses									8												
Percentage of Total Businesses									30%												
Strategic institutions									2												
Percentage of Total Institutions									100%												

Census Blocks included:	9.01-3
Total service area Households:	700
Total Service Area Businesses:	25
Total Service Area Strategic Institutions:	2

Total FTTH Budget:	$12,000,000
Total Budget for SA:	$1,800,000
Total MM Budget	$31,200,000

UC2B Last Mile 12.01-2

Infrastructure Funds	Year 0	Year 1				Year 2				Year 3				Year 4				Year 5			
		Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr2	Qtr 3	Qtr 4
Infrastructure Funds Advanced (estimate)									$1,440,000												
Percentage of Total Funds									4.62%												
Entities Passed & %																					
Households									530												
Percentage of Total Households									100%												
Businesses									6												
Percentage of Total Businesses									30%												
Strategic institutions									0												
Percentage of Total Institutions									100%												

Census Blocks included:	12.01-2
Total service area Households:	530
Total Service Area Businesses:	19
Total Service Area Strategic Institutions:	0

Total FTTH Budget:	$12,000,000
Total Budget for SA:	$1,440,000
Total MM Budget	$31,200,000

UC2B Last Mile 55-6

Infrastructure Funds	Year 0	Year 1				Year 2				Year 3				Year 4				Year 5			
		Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
Infrastructure Funds Advanced (estimate)									$960,000												
Percentage of Total Funds									3.08%												
Entities Passed & %																					
Households									368												
Percentage of Total Households									100%												
Businesses									9												
Percentage of Total Businesses									30%												
Strategic institutions									4												
Percentage of Total Institutions									100%												

Census Blocks included:	55-6
Total service area Households:	368
Total Service Area Businesses:	30
Total Service Area Strategic Institutions:	4

Total FTTH Budget:	$12,000,000
Budget for SA:	$960,000
Total MM Budget	$31,200,000

Potential Challenges
The primary challenge for the UC2B Middle Mile project is the impact weather will have on the construction schedule. Year 1 will be a relatively short construction season as contracts will not be awarded until late Q1 or early Q2.

Year 1 Challenges
If there is a wet spring in 2010, Year 1 construction may be delayed. Approximately 37% of the last mile construciton is scheduled to be completed in Year 1.

Year 2 Challenges
A hard winter with a late thaw in 2011 would again delay the start of Year 2 construction. Approximately 63% of the last mile construction is schedule for Year 2.

Summary
While weather is an unknown risk that we accept, we have planned to complete all construction within two years. We have additional time to complete work covered by this grant in the event that weather precipates lengthy construction delays.

Urbana-Champaign Big Broadband - Below Ground

Team Resumes

Team Summary

The UC2B Technical Team has subject matter experts whose skills range from a working knowledge of large construction projects to a thorough understanding of provisioning a service on a Layer 2 device port.

The UC2B Technical Team has a wealth of demonstrated experience with fiber optical network projects. The depth of expertise is reflected by the expansive network projects, including the Inter-Campus Communications Network (ICCN), which is the fiber network connecting the three University of Illinois campuses. Critical organizational skills complement the technical mastery required to maintain a large University campus network.

The University's excellence at networking was recognized in December of 2008, when PC Magazine and the Princeton review named the Urbana-Champaign campus the #1 most wired University in the Country.

Michael K. Smeltzer

Mike is the Director of Networking on the University of Illinois at Urbana-Champaign campus. He is the architect of the Urbana-Champaign Big Broadband (UC2B) concept and is one of the co-authors of the trio of UC2B BTOP proposals. He directs the University's team of networking specialists that have designed and will build and operate the UC2B Middle Mile and WDM-PON Last Mile networks.

Prior to rejoining the University in 2005, Mike was a local Operations Manager for McLeodUSA, a competitive local exchange carrier. In that role, he designed and oversaw the installation and operation of an $8 million fiber-to-the-multiple-dwelling-unit (FTT-MDU) project for McLeodUSA that at one time served upwards of 12,000 students in private off-campus housing with fiber-based voice and Internet services.

In his current role at the University, he oversees a staff of 25 networking specialists who maintain and continually upgrade wired and wireless networks in more than 300 buildings providing more than 70,000 wired Ethernet ports and more than 2,500 wireless access points. He was instrumental the University's expansion of wireless services both to end-users and as a way of economically providing bandwidth to small campus buildings that are far from the campus fiber infrastructure.

His staff also operates a 40-channel capable 10-gigabit DWDM fiber network that connects the University's three campuses to each other, to Internet 2 and to other peering partners in Chicago.

While his staff did all the work, he takes pride in PC Magazine's December 2008 ranking of the Urbana-Champaign campus as the #1 most wired campus in America.

In the early days of the Internet, Mike founded and grew a local ISP that was eventually sold and became part of Earthlink. He has previously served twice on the University's faculty.

For the UC2B Consortium, Mike will lead the networking team and be a member of the technical management team.

Frederick J. Halenar

Fred holds Associate and Bachelor degrees in Information Sciences. He has also completed some course work related to a Master's degree in Information Sciences.
Fred has over 37 years experience involving project and executive management of information technologies in the public sector. Experiences include overseeing multi-million dollar software solutions and building needed network infrastructure to delivery services to the end-users. One larger project included managing a million dollar building remodeling project of the City Hall that required the relocation of the data center. This project was challenged by the need to coordination multiple contractors and services.

Fred is responsible for planning, implementing, and maintaining technology, including telecommunications, audio/visual, data technologies and applications; establishing and monitoring adherence to system procedures and standards; and overseeing the operation, maintenance, back up, and disaster recovery of technologies City-wide. Responsible for policy related to telecommunications, data, web, and CGTV (channel 5). Responsibilities also include project management, emergency planning, contracting services, end-user support services, and supervising staff.

Fred has experience with infrastructure work, which includes the development of fiber optic networking specifications. Technical specifications included incorporating the Illinois Department of Transportation (IDOT) and City Code for roadway and right-of-way requirements. This work included both the inside and outside electronic component requirements. Experience also includes the creation of legal documents and contracts to implement fiber optic infrastructure-based projects.

Fred's professional experiences include working in cooperation with other government and private agencies. The most recent experience was the formation of a Geographic Information Systems (GIS) Consortium that has now been in operation for the last 8 years. Work included the creation of an intergovernmental agreement and chairing both the technical and policy committees of the Consortium.

Fred possesses a unique portfolio of knowledge, skills and experience that will provide valuable guidance to the UC2B technical team.

William H. DeJarnette

Bill is the IS Manager for the City or Urbana. A graduate of the University of Illinois he obtained his Bachelors in Accountancy in 1976 and is a registered Certified Public Accountant. He oversees the software development for the City financial packages and the joint Police Records System for Urbana, Champaign and the University of Illinois.

Over the last five years Bill has worked with a number of governmental units including Champaign County, Urbana School District, Urbana Free Library, Cunningham Township and ILEAS to bring fiber connectivity to these entities. Bill architected the design, bid the projects and provided daily point contact.

Bill has worked in IT for over 30 years and public sector for 22 years. Current routine responsibilities encompass everything from managing a TV station to providing for the ongoing IT needs of a typical city. This includes the evaluation and monitoring of security procedures, provision of support services, establishment and implementation of long term operational goals, Web design and maintenance, and document management.

Bill has worked with CUWiN to provide expanded wireless in downtown Urbana and in 2008 received a small state grant to push wireless out into the community.

Bill recently made a presentation to the Illinois Century Network Policy Board on methodologies to provide fiber at reduced costs to communities and discussed how smaller communities can leverage those techniques to take advantage of ICN's offerings. He works with a number of organizations and was involved in the creation of the Champaign County Geographic Information Systems Consortium. He has chaired the technical committee and sits on the policy committee.

Bill's background in Finance, software development including billing systems, and fiber installation projects will provide him with the experience necessary to be a member of the technical management team.

Tracy L. Smith

Tracy holds a Master's degree in Computer Science and has over 10 years of experience in networking and IT service support. In 1999, Tracy was a Technology Consultant for the Illinois State Board of Education where she supported over 700 end-users and maintained over 200 servers. She developed and maintained a Virtual Private Network (VPN) solution for renewal of teacher certifications from Regional Offices of Education locations across the state.

In 2001, Tracy joined the Illinois Century Network (ICN), which is an ISP serving K-12 schools and non-profit entities in Illinois. She provided tier 3 WAN support for southern Illinois regions and Chicago. She co-designed a statewide VPN solution that met rigorous requirements of state agencies, like Illinois State Police, Department of Family Services, and Illinois Department of Transportation.

Her role expanded to technical lead for many projects including the centralization of state agency data centers. She designed the data center network, specified network equipment to purchase and built the configurations to support hundreds of servers in an efficient, redundant, secure, and highly available environment.

In 2007, Tracy joined the University of Illinois as the Operations Manager for the Inter-Campus Communications Network (ICCN), a University-owned fiber network connecting its three campuses. Under her guidance, ICCN engineers design, implement and support valuable resources like Internet access and 10Gbps access to major research networks, like Internet2, MREN, ESnet, and others. They also ensure that the ICCN maintains 100% backbone up-time.

In 2008, Tracy expanded her role to Network Services Manager. Her group oversees campus-wide services like Domain Name Service (DNS), IP-based security cameras, and digital signage,

Tracy continues to represent the University on task forces, like Illinois Rural Health Network, Illinois Broadband Council, FTTH Council, Committee for Institutional Cooperation (CIC) Network and IT councils, and ICN's Advanced Engineering Task force.

In addition to working closely with the co-authors of the trio of UC2B BTOP proposals, she oversees the daily operations of the engineering staff who have designed and will construct the UC2B network. Her broad technical experience coupled with her management skills and desire to develop broadband in areas where it's lacking, will equip her to serve on the UC2B technical team.

Aaron Brown

In addition to completing a degree in Telecommunications Technology, with certification in Outside Plant, Aaron has over 14 years of experience working in Telecommunications at the University of Illinois. During his employment at the University he has worked on a variety of projects and has helped build the Illinois network from a few thousand connections to nearly 75,000 access layer ports and more than 2500 wireless access points. These and other accomplishments are highlighted in the follow paragraphs.

His experience with UIUCnet, the Illinois campus data network, began in 1994 as an intern installing, terminating and certifying copper and fiber optic infrastructure in various campus buildings. From there he returned after graduation and in Dec. of 1995 moved to the support group responsible for the support of UIUCnet, including provisioning, testing and troubleshooting. He continues in this role today with expanded responsibilities that began in May of 2001 with management of the support group, and in Feb. 2008 with the management of the combined Network Design and Support Group. The combined group numbers 14 FTE's and 1 PTE and is responsible for the design, support, research and testing of the nearly 75,000 access ports on the UIUCnet building networks, over 2500 wireless access points, support of the campus backbone hardware and the facilities that house this equipment, including UPS, A/C, generators, etc.

Beginning in 1998 and continuing until presently, Aaron has provided technical management/administration of URHnet (University Residence Hall Network). This network is a partnership with campus Housing and provides Ethernet connectivity to over 5600 rooms and 10,000+ systems in our campus residence halls. Aaron is currently working with the design team and Housing to expand wireless coverage in the residence halls as an enhancement to their networking experience.

In early 2006 Aaron was asked to serve on the technical support team for a new project to connect the three University of Illinois campuses via an optical ring and continues in this role today. This network known as the ICCN (Inter Campus Communications Network) is a DWDM based optical network consisting of over 565 miles of fiber, touching 17 points with add/drop facilities in 9 of those 17. The network provides multiple 10Gbps Ethernet connections to each campus as well as 10Gbps peering connections with major research entities and other Big Ten Universities. As part of the support team for this network Aaron has attended multiple fiber classes focusing on WDM technology, became proficient in a variety of optical test equipment specific to WDM, 10Gbps performance testing/verification and management of network that experience no unscheduled down time in over two years of operation.

For the UC2B Consortium, Aaron will serve on the Implementation and Operations teams.

Christopher Skaar

Chris Skaar has been in the IT industry for 11 years beginning his career as a desktop support technician for Gateway 2000 Inc., which provided a foundation of customer service and trouble-shooting skills. In 1999, he moved to a consulting company which, through a series of mergers, became a part of McLeodUSA. Through this company, he continued to provide a high level of 24/7 on-site technical support for companies in the Midwest. He provided hardware and software support for servers running the Microsoft and Novell operating systems as well as LAN/WAN networking equipment support.

In 2001, Chris began working for CITES on the Champaign-Urbana campus of the University of Illinois. His work in the CITES Operations Center and Network Design Office gave him valuable technical and project management skills as well as insight into the running of a large research network

In 2004 Chris was asked to take on the role of Service Manager for two services provided by CITES: Iris and Lens. Iris is a tool used to manage network equipment and Lens is a collection of harvesters that gather network statistics and store them in a database, from which IT Professionals on campus can glean valuable information about their networks. As service manager, he was tasked with gathering requirements and guiding the design of these tools to fit the needs of the myriad of different departments on campus. He continues in this role.

In 2004 Chris earned a position with the CITES Network Support Group. The main focus of this group is hands-on troubleshooting and support of the University of IL campus building and core networking equipment. This includes nearly 75,000 access ports, 2500 wireless access points, the campus backbone hardware and the facilities that support this equipment. Soon after joining the Network Support group, he was tasked with upgrading the power infrastructure in the core node facilities. He researched, designed and oversaw the installation of new distribution panels, power circuits, power distribution units, and UPSs for 6 core network nodes.

In 2006 Chris was asked to serve as lead optical engineer for the ICCN (Inter Campus Communications Network) network. This position is responsible for ensuring day-to-day operation and 24/7 technical support of a 565 mile WDM (Wavelength-Division Multiplexing) ring connecting the 3 University of IL campuses in Urbana-Champaign, Chicago and Springfield. This network has 17 sites around the state with 9 of these sites being add/drop points. The network provides multiple 10Gb Ethernet connections connecting the 3 campuses and several research networks running over multiple WDM wavelengths. To facilitate this role, he has attended multiple classes focused on operation and maintenance of WDM technology and is proficient with a variety of optical test equipment as well as analyzers measuring performance across a 10Gbps network. He continues to fill this role and to this date, there has been no unscheduled downtime on this network.

In 2008, Chris became the Team Lead for the CITES network support group tasked with day-to-day management of the 7-member team. He also acts as the Tech lead for the group, tasked with providing technical leadership for the networking division of CITES. He continues in this role to this date.

For the UC2B Consortium Chris will serve on the Implementation and Operations teams.

Nick Buraglio

Nick Buraglio has been in the Networking and Security industry for 12 years, working with high visibility and zero-downtime networks ranging from fortune 500 companies to regional broadband Internet service providers as well as large, cutting edge research networks operating across the country serving scientists and researchers internationally.

Having worked rebuilding an aging Internet provider from the ground up, coordinating or performing everything from construction phase to protocol implementation and security policy lends a very unique skill set that is well suited for service provisioning, design and implementation. During this tenure (2000-2002), the internet provider in question relocated to a new facility, tripled in capacity and customer base and expanded into two new markets.

Participating in working groups designing and maintaining prominent networks such as the TeraGrid (2002-2008), I-Wire (2002-2008) projects and SCinet (2003, 2005, 2006) as well as the campus networks for National Center for Supercomputing Applications (2002-2008) and University of Illinois (2008-Current) as well as the InterCampus Communication Network also provides a very uncommon perspective and expertise, also well suited for broad scoped, high visibility projects.

Buraglio has also worked with such agencies as the Federal Bureau of Investigation on security related matters, training of Regional Cyber Action Team (RCAT) members on network based security threats and has been held a clearance at the DoJ Top Secret level.

Buraglio is also an active contributor to open source projects such as pfSense, a UNIX based firewall appliance.

Operating from these strengths, Buraglio will provide a distinct skill set to the design, operation and security of the UC2B project. Building on past experience and current research into market and technology, Buraglio will contribute to the architecture and implementation of the UC2B network, and its associated services and security.

Ryan Harden

Ryan received a Bachelors of Science in 'Network and Communications Management' from Devry University in 2004. Through his college career Ryan held the position of 'IT Support' at Flexlink Systems in Lisle, IL. His duties included day-to-day IT support as well as LAN/WAN support. During his tenure, Ryan designed, orchestrated, and implemented the move of all IT resources from one Chicago area suburb to the existing new building.

In 2004, Ryan joined the University of Illinois as a Network Designer. In 2005, he stepped into the Network Engineering group, where he assists in the design and support of UIUCnet, the campus backbone network. UIUCnet serves more than 350 campus buildings including roughly 2000 network switches and routers.

Since joining Network Engineering, Ryan has been involved in the designing and implementing of two revisions of the campus backbone as well as many special purpose networks. He also designed the campus wide anycast DNS deployment. Ryan is the project lead for IPv6 deployment on campus. IPv6 is supported on all backbone devices and plans are underway to connect all buildings with IPv6 as soon as devices are upgraded to support it. Ryan also has taken the lead on all WAN related support and design. Ryan supports the campus BGP routers and works to negotiate Peering arrangements as well as any issues that might arise with external connectivity. This includes connectivity to the University's ICCN network.

Ryan also serves as the Lead Network Engineer for the University of Illinois owned Inter-Campus Communications Network (ICCN). The ICCN consists of over 565 miles of fiber creating a ring between the three University of Illinois campuses in Urbana, Chicago, and Springfield. DWDM technology is used to provide several 10Gbps connections between each of the campuses. Ryan designed and supports the Layer3 hardware that provides MPLS, BGP, and transport services between all three campuses. The ICCN visits major peering hubs and provides redundant 10Gbps connections to the national research and education networks Internet2, NLR, MREN, and ESnet to all University of Illinois entities. The ICCN serves as the primary ISP access for the Urbana and Springfield campuses and backup for the Chicago campus.

Ryan's experience in these roles will be a valuable asset to UC2B. His skills will ensure that UC2B has a solid foundation on which to provide high speed and reliable service to all customers.

Josh Reeley

Josh Reeley has been working with computer networks since he was a junior in High School when he first started in the Cisco Networking Academy. The Academy was offered though his High School in cooperation with Parkland Community College. That summer he was hired on at the University of Illinois in Urbana-Champaign for an internship with the Network Design Office. During that internship he documented much of the campus network infrastructure both physically and logically, a job that entailed visiting nearly 150 buildings.

Josh went on to college at Eastern Illinois University where he graduated in 2005 majoring in Computer Information Systems. He received a Bachelor of Science in Business with focuses in Client/Server Programming and Telecommunications. Since graduation he has worked for the University of Illinois in the Network Design Group.

Josh's primary job in the Network Design group is to be a consultant and project manager of full building network upgrades/replacements. A network replacement can take six months to a year to plan and execute. A large part of the process is project management and coordinating with different trades like drafting engineers, electricians, cable pullers and even network device vendors. During his time at the University of Illinois he has designed and built over 20 building networks with an average host count about 400 per building. Since 2008 Josh has been the Technical Lead for his group, which has him evaluating new networking products and technologies as well as offering technical advice to his group when needed.

Randy Hall

Randy acquired an Associate's Degree in Electronic Engineering at Parkland College in August 1982.

In 1984, Randy became a Telecommunications Project Manager for the University of Illinois. He solicited bids to replace the Illinois Bell Telephone service to a University owned system. Illinois Bell Telephone was awarded the contract and construction started in 1986. The network consisted of 103 manholes and a concrete encased conduit plant. New telephone service to over 300 buildings and multi-mode fiber optic cables were placed.

In 1995, Randy was promoted to Assistant Plant Engineering Manager. He assisted the plant engineering manager with the design and construction of new telecommunications facilities to new University buildings and the remodeling of existing buildings.

In 2001, Randy became the Plant Engineering Manager. As plant manager, Randy continues to design, create specifications, award contracts, oversee the construction and create as-built records for all telecommunication projects. Randy led the recent effort to install a single mode fiber optic network to all major campus buildings. Randy also manages an annual budget for outside plant infrastructure improvements that exceeds $900,000.

Randy's technical, organizational and management skills will prove a valuable asset to the UC2B Physical Plant team.

Brian Cockerham

Brian launched his career at the University of Illinois in 1992 when he served as a Telecommunication Network Specialist. He surveyed and coordinated voice, local area networks (LAN) and fiber optic projects. In 1994, Brian expanded his role to include coordinating multiple projects and supervising staff responsible for support of the campus telecommunications and data distribution systems.

In 1996, Brian shifted his focus to engineering thereby coordinating the engineering of the campus telecommunications and data distribution systems. Brian designed new construction and preventative maintenance planning. He maintained current plant drawings and automated computer aided drafting (CAD) records, and prepared planning documents for future projects and capacity.

In 2000, Brian was promoted to Assistant Telecommunications Manager. He continues managing the engineering and overall construction of the campus telecommunications distribution systems, has. Brian also assists in the management of the CITES Plant Design Staff.

Brian's wide range of skills and experiences equips him to serve as a vital technical resource on the UC2B Physical Plant team.

Robert C. Miles, Jr.

Bob Miles has over thirty (30) years experience in outside plant construction in the communications field. He has managed multiple projects with responsibilities including design, permitting, budget allocation, hiring, personnel supervision and final project reconciliation.

In 1992 he managed a rebuild of approximately 350 miles of aerial plant for CATV in Decatur, IL. This task was completed within the targeted time frame of two (2) years and within budget. Bob's responsibilities during this project included design approval; supervision of construction, splicing, activation and testing crews; tracking and approval of daily billing; handling any public or governmental questions or problems to a satisfactory conclusion; and liaison with local power and telephone entities.

While employed by McLeodUSA, Bob managed the new build of fiber optics in the following locations:

1. Decatur, IL – Built fiber from McLeodUSA to Ameritech's central offices and AT&T. The build included five (5) city rings and completion of McLeodUSA's network backbone.
2. Bloomington, IL – Built a six (6) mile city ring to three (3) GTE and one (1) AT&T central office. Built a lateral into Illinois State University for ICN.
3. Springfield, IL – Built fifteen (15) miles of fiber and copper rings for home and business subscribers. Built ring and lateral into Ameritech Cellular.
4. Champaign, IL – Built ten (10) miles of fiber and copper rings to serve ONU's located on customer premises.
5. St. Louis, MO – Built five (5) miles of fiber rings in downtown St. Louis to serve the Verizon Cellular switch site.
6. Peoria, IL – Built a fiber ring into Verizon Cellular. Built a fiber ring to serve US Cellular MTSO.
7. Macomb, IL – Built a lateral into Western Illinois University for ICN.
8. Quincy, IL – Built a lateral into the community college for ICN.

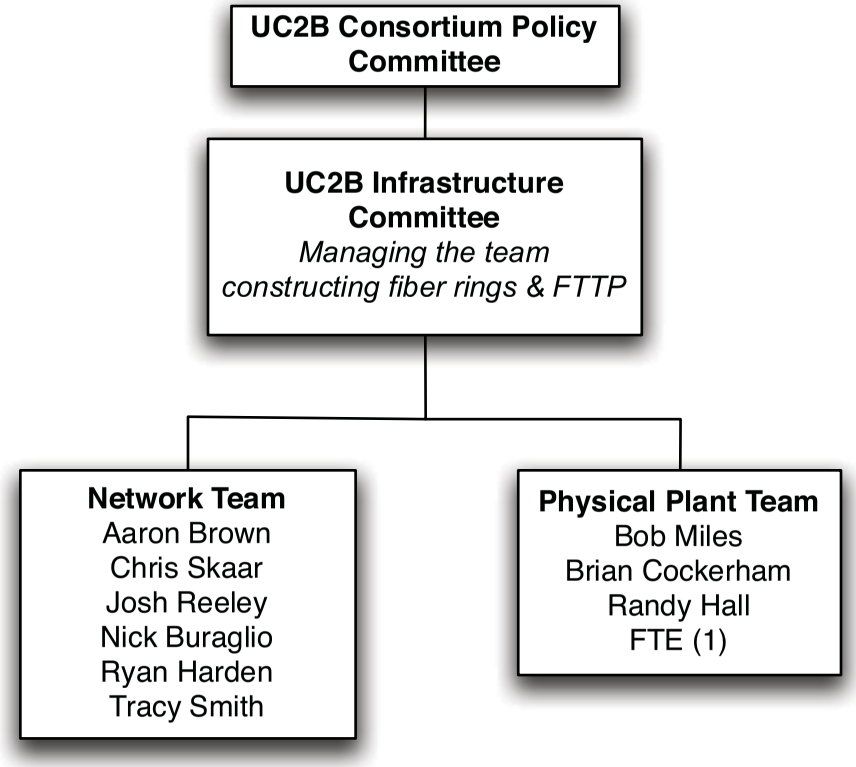
Multiple locations in Illinois – Built laterals to TCI Cable and MediaCom.

On the above projects Bob was responsible for the hiring and management of contractors, the building of laterals into phone company locations, coordination with municipalities and local utilities, monitoring work performed and checking billing for accuracy.

While at McLeodUSA Bob also was responsible for all fiber maintenance over $10,000, including relocations and upgrades, and small customer building entrances in Illinois and Missouri.

UC2B Grant Implementation & Construction Team

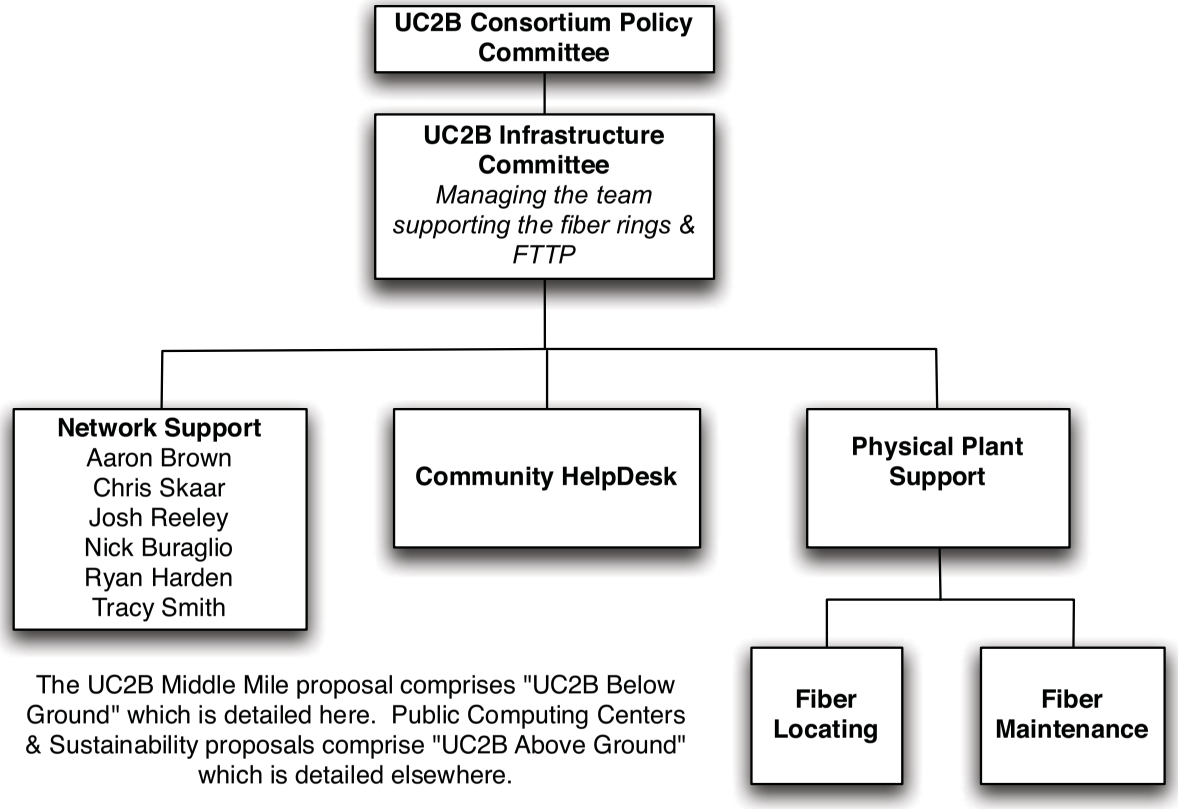
Organization Chart



The UC2B Middle Mile proposal comprises "UC2B Below Ground" which is detailed here. Public Computing Centers & Sustainability proposals comprise "UC2B Above Ground" which is detailed elsewhere.

UC2B Backbone & ISP Operations Team

Organization Chart



The UC2B Middle Mile proposal comprises "UC2B Below Ground" which is detailed here. Public Computing Centers & Sustainability proposals comprise "UC2B Above Ground" which is detailed elsewhere.

UNIVERSITY OF ILLINOIS
Urbana-Champaign • Chicago • Springfield

Office of University Counsel
258 Henry Administration Building
506 South Wright Street
Urbana, IL 61801

August 14, 2009

Assistant Secretary
National Telecommunications and
Information Administration
U.S. Department of Commerce
Washington, D.C. 20230

Re: Urbana-Champaign Big Broadband Consortium NTIA BTOP Proposals/Legal Opinion

Dear Sir:

The Office of University Counsel acts as legal counsel for the Board of Trustees of the University of Illinois (the "Applicant.") In such capacity, I, as an Associate University Counsel, acted as counsel to the Applicant in connection with its ability to apply to the Broadband Technology Opportunities Program and in the review of the grant agreement, as referenced in the Notice of funds Availability.

The Office of University Counsel is of the opinion that:

(a) The Applicant is duly organized and existing institution of higher learning constituted under the laws of the State of Illinois.

(b) The Applicant has legal authority and power: (1) to execute and deliver the grant agreement; and (2) to perform all acts required to be done by it under said agreement.

(c) No legal proceedings have been instituted or are pending against the Applicant, the outcome of which would adversely affect the Applicant's ability to perform the duties under the grant agreement, and there are no judgments against the Applicant which would adversely affect the Applicant's ability to perform the duties under the grant agreement.

Very truly yours,

Laura D. Clower
Associate University Counsel

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