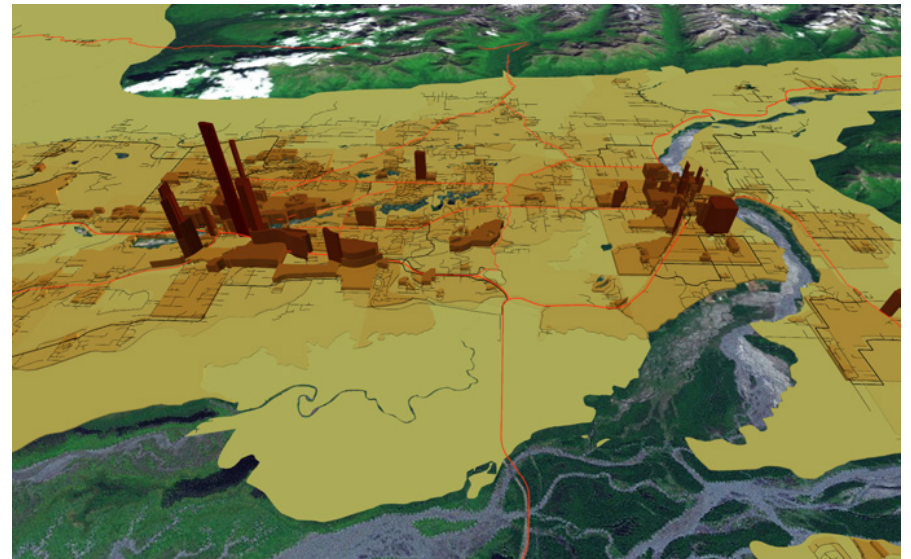


# MSB Density and Build-out Study - Intersections Component Briefing for Alaska Smart Communities Forum

*Linking Demographics, Futures Simulation and Community  
Facilities Needs Assessment to Smart Communities Tools*



1/30/18

## Shannon Bingham – Western Demographics, Inc.

- 35 Years (200 Agencies) Experience as Planner / Demographer with School Districts and Municipalities
- Early Adopter of GIS for Community Facilities Needs Analysis and Growth Forecasting
- Frequently-used Analyst for “Build-out” Forecasting for Ultimate Community Land Use and Density Studies – Site Locations for Schools and Other Municipal Facilities
- Involved with Matanuska-Susitna Borough Build-out and Density Study and MSBSD Facility Planning and Forecasting Since 2001
- Also Currently Working for Anchorage School District on Capital Planning and Other Projects

# History of the MSB Build-out Project

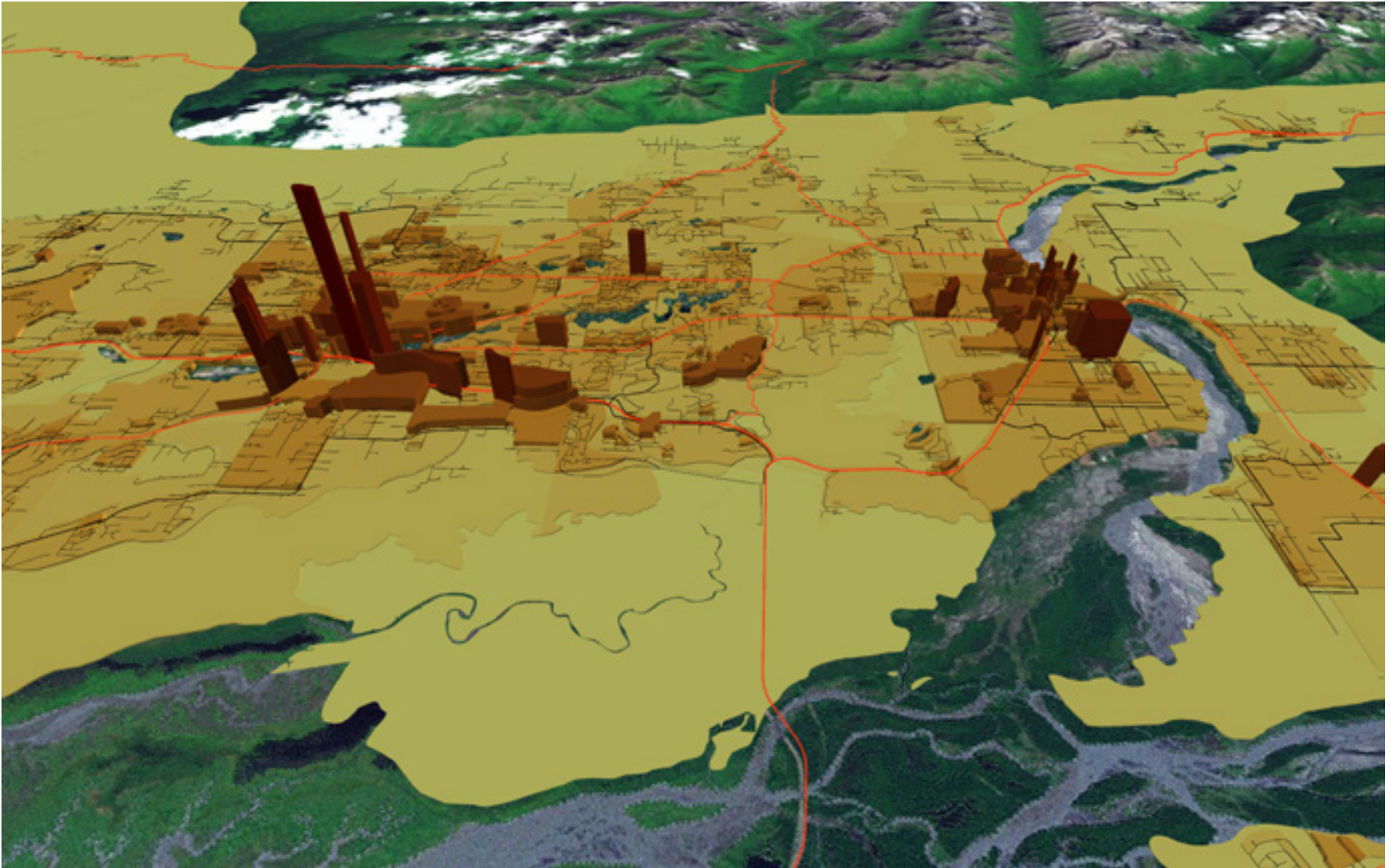
- Began in 2011 to Explore Future Community Service Facility Site Needs and Needs Assessment in Anticipation of Growth and Knik Arm Bridge Impacts
- Western Demographics Used as Prime Contractor
- School Site Locations, Public Safety Site Locations, Community Council Forecasts Added
- Wastewater / Septage Needs Component Added
- 2015 Southwest Borough / Knik Arm Bridge Simulations Added
- 2016 - Intersections Component Added

# Build-out Study

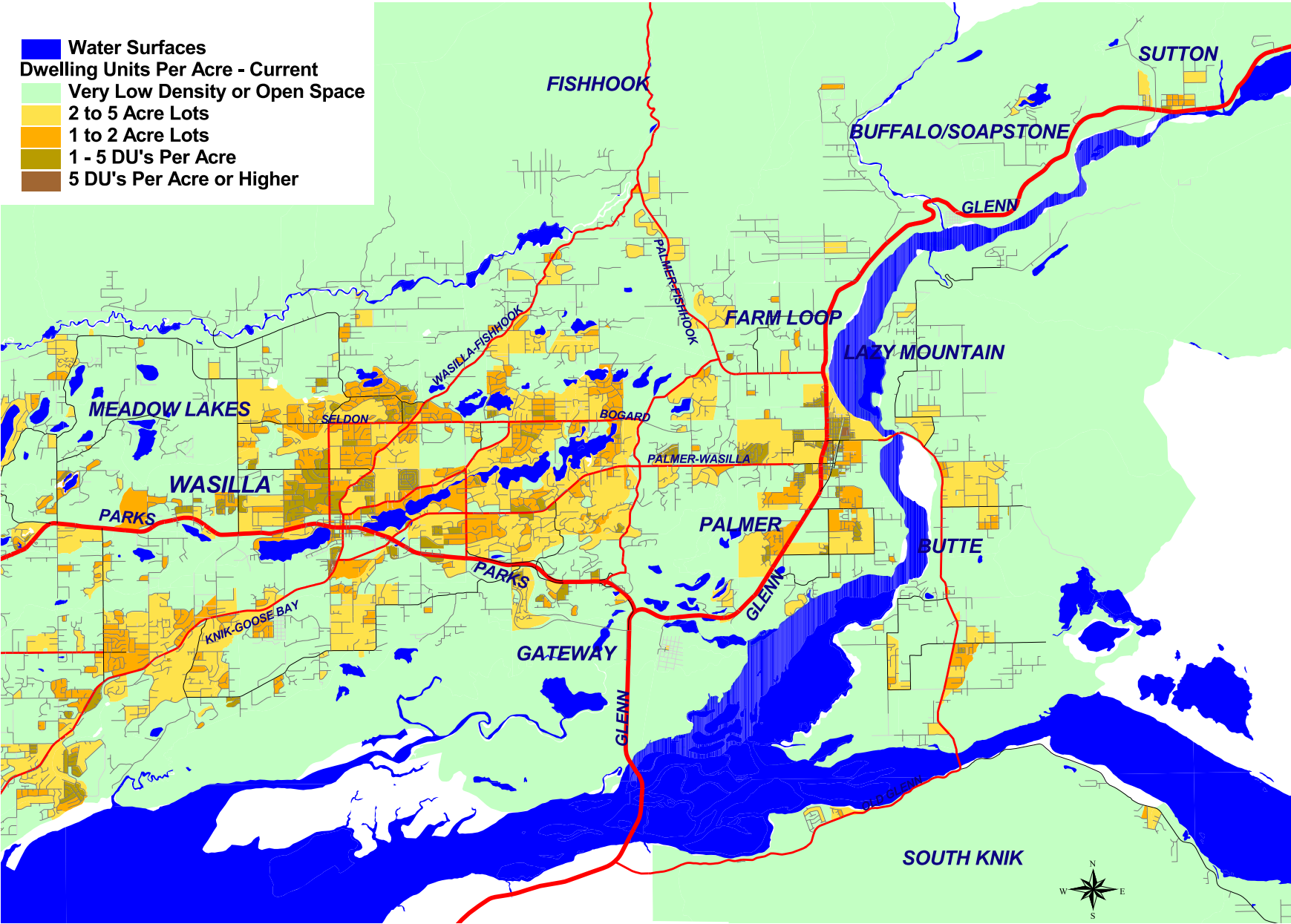
- Total Build Out Persons – 398,322
- Total Build Out Dwelling Units – 186,540
- Actual Build-out - 100-year Timeframe



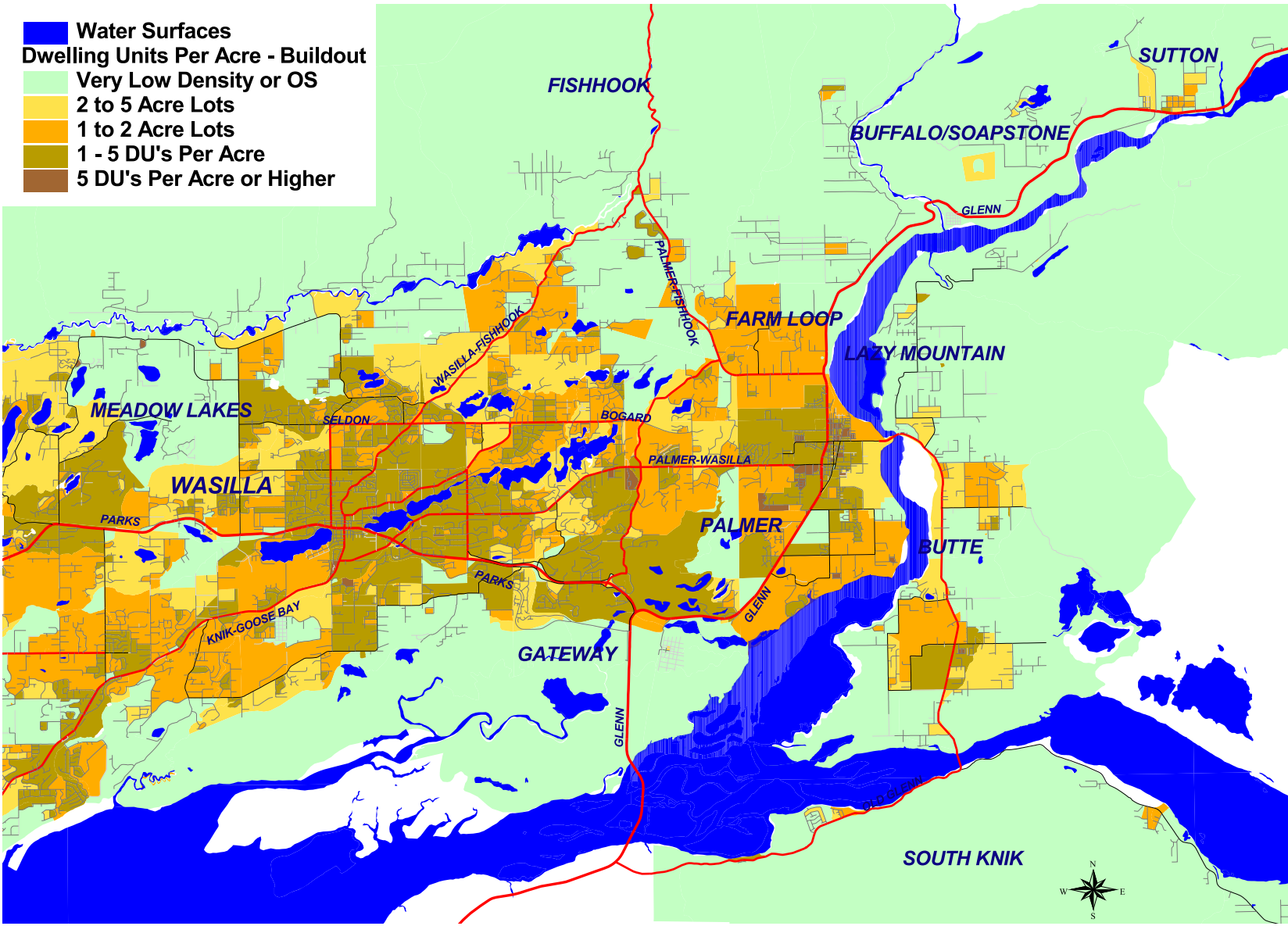
# MSB Density Study – Palmer / Wasilla



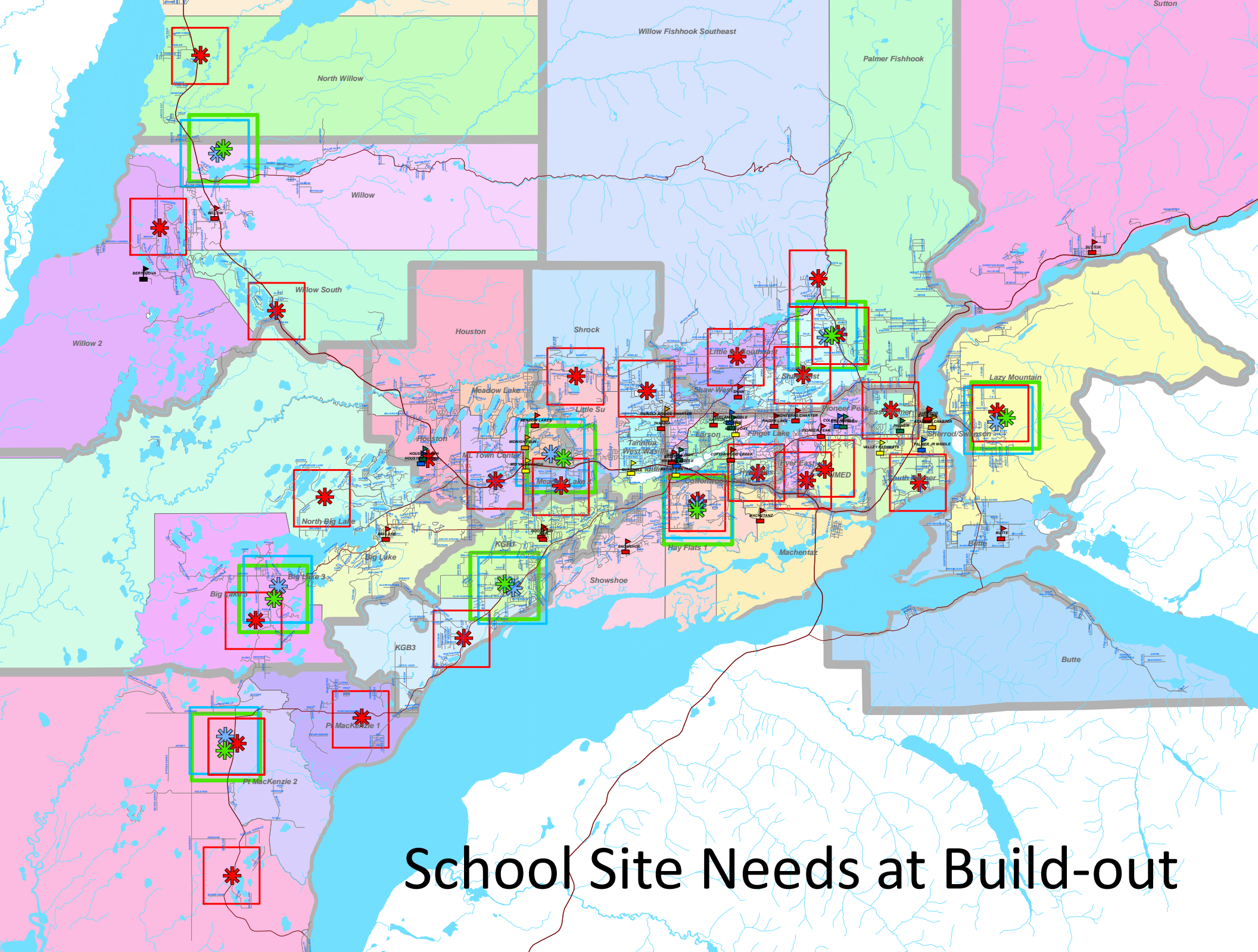
# Current Dwellings Per Acre – Central Valley



# Dwellings Per Acre at Build-out – Central Valley

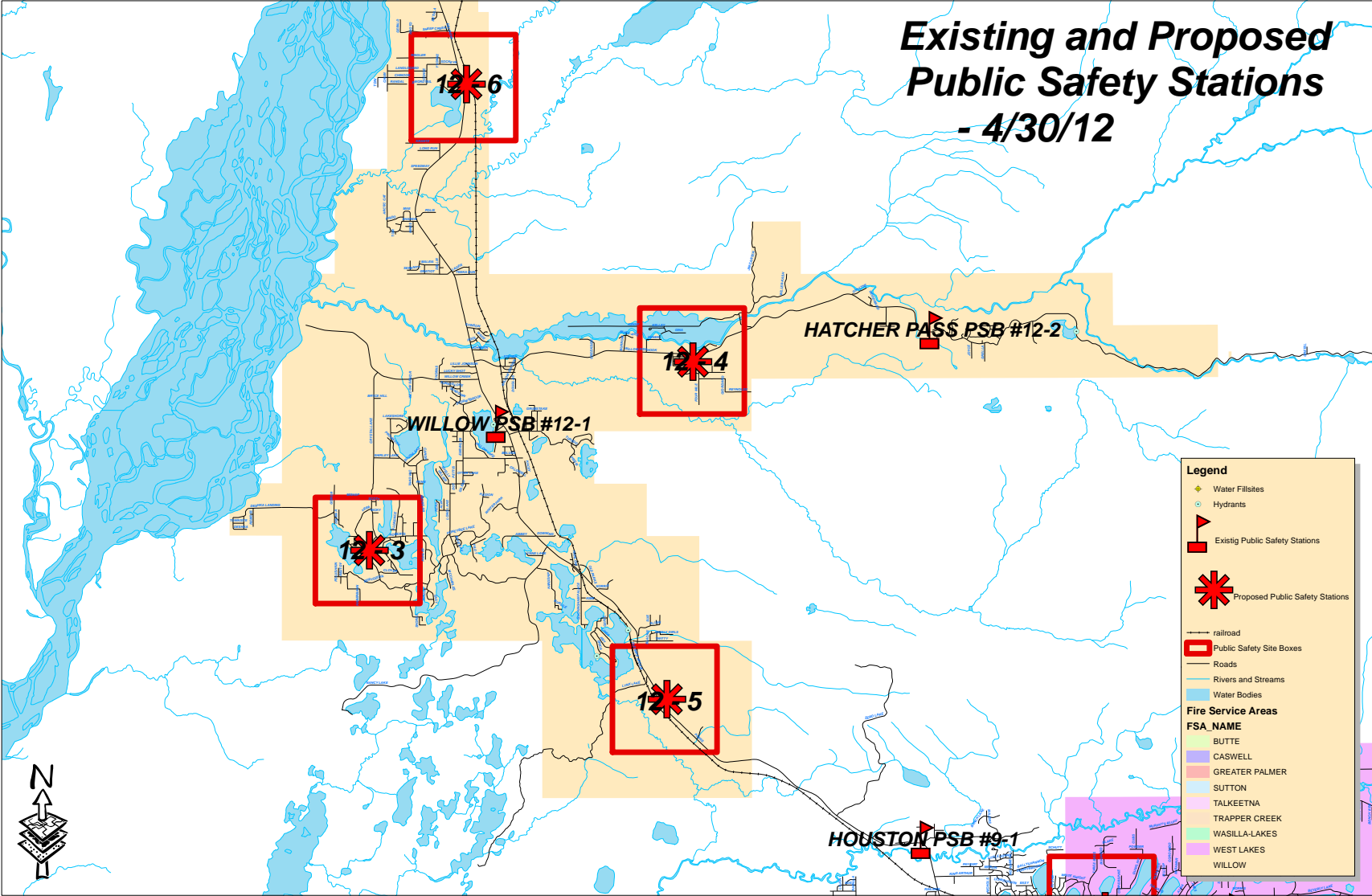






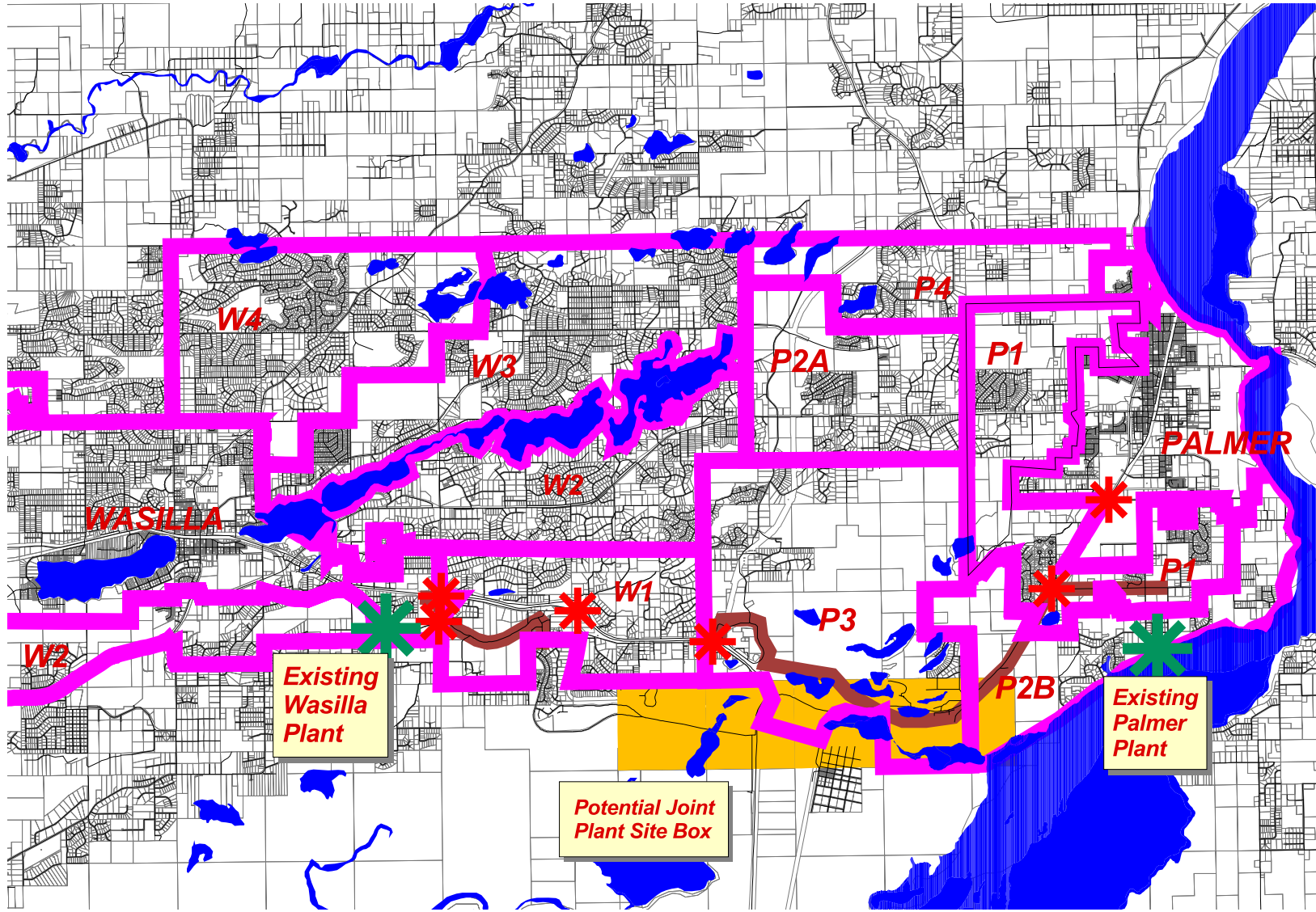
# School Site Needs at Build-out

# Existing and Proposed Public Safety Stations – Willow



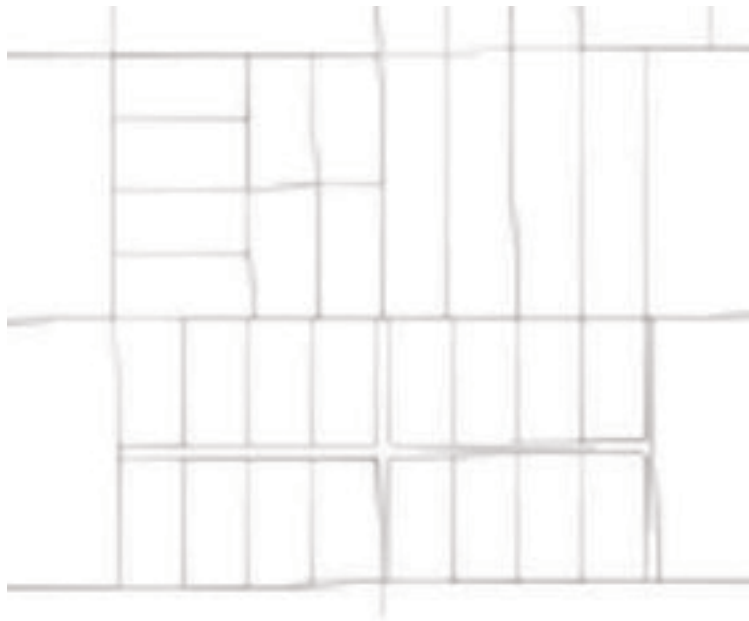
# Build-out Study – Wastewater Component

## MSB Regional Wastewater / Septage Treatment Plant Site Box and Service Lines



# Effects of Water and Sewer Mechanisms on Expanded Density

- Large Lots Typical of Well / Septic



- Sub-1-Acre Lots Typical of Public Sewer







# What Are National and Regional Businesses Looking for in Locational Decisions?





# Intersection-centric Businesses

- Fred Meyer
- Walmart
- Tesoro
- Holiday
- Napa Auto Parts
- O'Reilly
- 7-Eleven
- Diamond Shamrock
- Subway
- McDonalds
- Burger King
- Taco Bell
- Starbucks
- Target
- Little Caesar's
- Dominos
- Safeway
- Walgreens
- Three Bears
- Family Practice Medical
- Dental Offices
- Urgent Care Clinics
- Liquor Stores
- Storage Units
- Automotive Lubrication
- Banks and Credit Unions

# Business / Industrial Areas

- What are Potential Businesses Looking For?
- Skilled Workforce and Customer Base
- Transportation Access – Road, Air, Rail, Port / What are the Distances?
- Infrastructure – Water, Sewer, Gas, Electric, Phone, Broadband
- Water Pressure and Electric Power for
- Industrial Processes
- Services – Fire Suppression, Police, Hazardous Materials Disposal Resources, Schools, Parks, Recreation, Atmosphere
- Freedom from Excessive Regulation



# New Economy Trends - Business Incubator Example – Tin Town – Courtenay, BC



11/14/16

15

# Intersections – Early Lifecycle Businesses

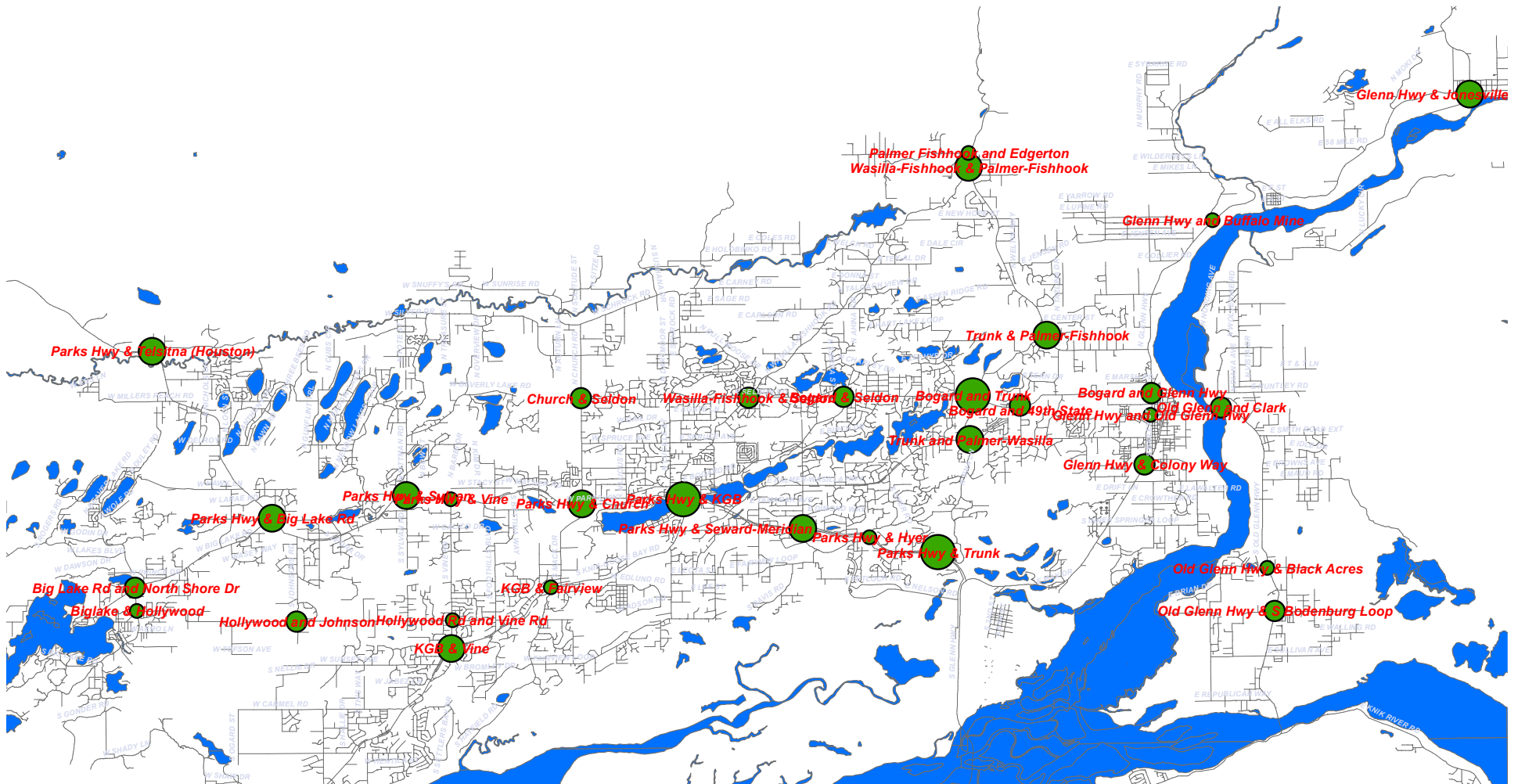


# What Have We Learned About What Potential Users Want?

- Intersection-centric Businesses Want Buffer-centric Data – (Proximity-linked to Intersections)
- Available Elsewhere / Complicated to Obtain
  - ESRI Tapestry Data – Licensed Consumer Data
  - Other Licensed Consumer Data Channels
- Available Elsewhere / Easy to Obtain
  - Census Demographics – Public Data to 2010
  - American Community Survey (ACS) – Public Data to 2015
- Available from Borough / Complicated to Obtain
  - Build-out Data, Future Population / DU Data / Year built / Vacancy
  - Transportation Volume / Intersection Data



# Key Intersections



# Borough Build-out Data Linked to Buffers

Intersection	1-Mile Buffer				2-Mile Buffer				3-Mile Buffer			
	2010 Dwelling Units	Build-out Dwelling Units	2010 Population	Build-out Population	2010 Dwelling Units	Build-out Dwelling Units	2010 Population	Build-out Population	2010 Dwelling Units	Build-out Dwelling Units	2010 Population	Build-out Population
Big Lake Rd and North Shore Dr	111	152	227	316	145	220	209	358	113	298	225	561
Biglake & Hollywood	495	771	796	1549	946	1566	1702	3369	1053	2189	1520	4079
Bogard & Seldon	968	1564	2579	4043	2450	6341	6453	15782	5580	14608	14431	35986
Bogard and Trunk	540	1208	1472	3044	1498	5107	4136	12536	1781	6177	5123	15361
Glenn Hwy and Buffalo Mine Rd	33	117	79	304	136	466	332	1124	309	682	1155	1817
Hollywood and Johnson	143	281	350	615	340	616	897	1370	308	634	840	1481
KGB & Vine	700	1822	1910	4832	2031	5904	5695	15440	3505	10751	9662	27800
Old Glenn Hwy & Black Acres	128	159	286	104	81	299	457	917	2351	1955	5566	
Old Glenn Hwy & S Bodenburg Loop	25	25	02	6028	858	405	2102	796	1022	3660	2588	8612
Parks Hwy & Big Lake Rd	271	31	77	943	1044	2573	1120	3112	2017	6210	4141	13904
Parks Hwy & KGB	1371	5240	2716	11808	3916	12636	9008	29716	5348	15813	13442	38625
Parks Hwy & talkeetna spur	102	312	101	487	120	501	126	828	393	2079	437	3559
Parks Hwy & Telsitna (Houston)	40	170	113	428	293	713	607	1580	356	1012	747	2183
Parks Hwy & willo fishhook	75	137	113	283	380	1997	451	4260	701	2605	829	5168
Talkeetna Spur & e second	317	826	321	1513	465	1133	486	2016	612	1646	644	2851
Trunk & Palmer-Fishhook	328	1016	940	2525	520	2481	1397	6077	1173	5613	3148	13937
Trunk and Palmer-Wasilla	274	2063	727	4879	26	49	67	111	27	437	77	1143
Wasilla-Fishhook & Palmer-Fishhook	97	227	188	529	483	905	1255	2251	819	1512	2088	3653
Willow Fishhook and 4 Mile Rd	26	19	28	37	26	19	28	37	26	19	28	37

DRAFT DATA

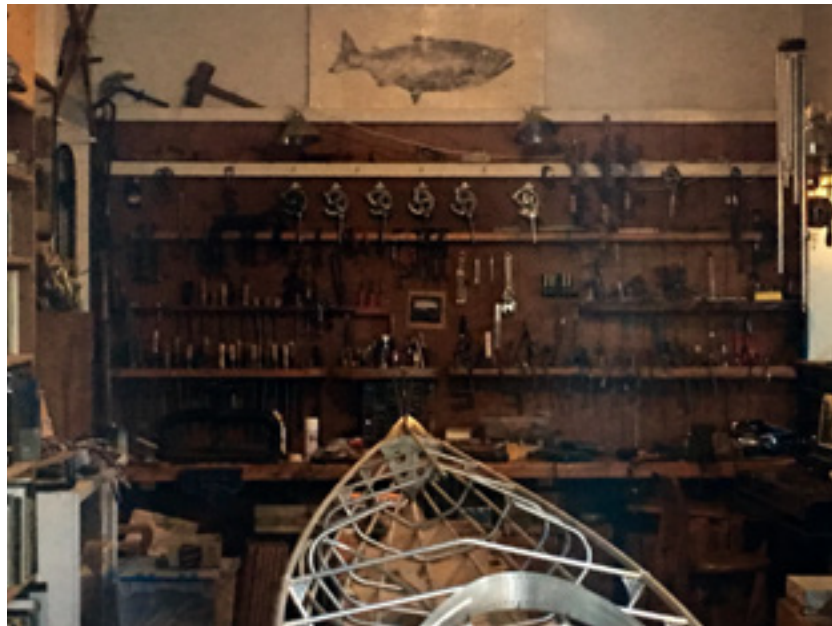
# Commercial Data Needs for Intersection-centric Locations

- Population and Dwelling Unit Forecasts
  - .5, 1, 1.5-mile Radii
  - 2015, 2020, 2025, 2030, Build-out
  - Residential Year Built and Vacant Lots
  - Demographic / Economic Characteristics
- Infrastructure
  - Water
  - Road
  - Electricity
  - Phone, Broadband
  - Gas
  - Sewer
- Police and Municipal Jurisdiction
- Intersection Specifications
  - Traffic Count
  - Type of Roadway
  - Lane Count
  - Signalization
  - Multiple Approaches
- Parcel Size and Existing Land Use
- Degree of Vacancy
- Distances to Services and Transportation Hubs
- Competitors





# New Economy Trends - Maker Spaces and Live- Work Units in Workforce Housing Settings





Three Bears Alaska –  
Medium-sized Grocery /  
Convenience / Fuel –  
Intersection-Centric





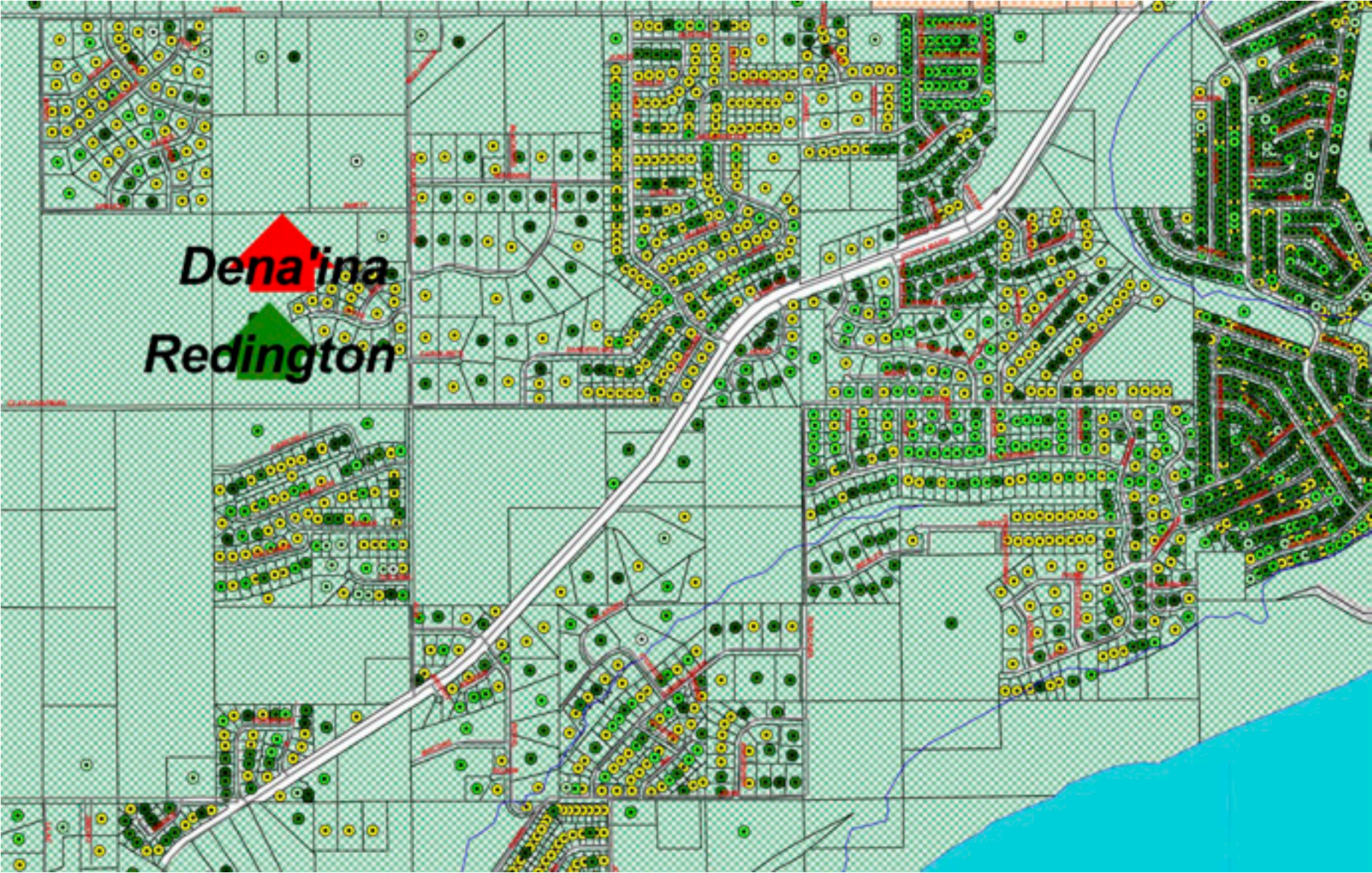


Housing Affordability and Investment – Duplexes, Triplexes and Fourplexes on Lots Traditionally Used for Single Family Detached





# Residential Year Built and Vacant Lots





Num	Name	HH Size	Med Income
28	Biglake & Hollywood	3.74	\$69,922
90	Hollywood and Johnson	3.74	\$69,922
52	Glenn Hwy & Colony Way	3.41	\$81,389
100	Old Glenn and Clark	3.35	\$81,250
94	Church & Seldon	3.33	\$77,833
1	Bogard and Trunk	3.29	\$98,625
12	Trunk and Palmer-Wasilla	3.29	\$98,625
97	Bogard and 49th State	3.29	\$98,625
32	Wasilla-Fishhook & Palmer-Fishhook	3.25	\$83,854
104	Palmer Fishhook and Edgerton	3.25	\$83,854
67	Old Glenn Hwy & S Bodenburg Loop	3.22	\$80,313
29	Bogard & Seldon	3.09	\$73,878
40	Wasilla-Fishhook & Seldon	3.09	\$73,878
14	Trunk & Palmer-Fishhook	3.07	\$74,635
22	Glenn Hwy and Old Glenn Hwy	3.07	\$74,635
107	Glenn Hwy and Buffalo Mine	3.07	\$74,635
16	Parks Hwy & Seward-Meridian	3	\$79,000
102	Willow Fishhook and 4 Mile Rd	2.88	\$63,500
98	Bogard and Glenn Hwy	2.87	\$63,207
4	KGB & Vine	2.86	\$76,223
5	Parks Hwy & Big Lake Rd	2.86	\$57,019
33	Parks Hwy & Talkeetna (Houston)	2.84	\$72,273
69	Old Glenn Hwy & Backcross	2.86	\$84,315
92	Hollywood Rd and Vine Rd	2.86	\$76,223
95	KGB & Fairview	2.86	\$76,223
8	Parks Hwy & KGB	2.85	\$81,719
19	Parks Hwy & Church	2.84	\$72,273
7	Parks Hwy & Sylvan	2.74	\$68,250
18	Parks Hwy & Vine	2.74	\$68,250
6	Parks Hwy & Hyer	2.71	\$88,750
11	Parks Hwy & Trunk	2.71	\$88,750
89	Big Lake Rd and North Shore Dr	2.62	\$59,444
23	Glenn Hwy & Jonesville	2.61	\$41,250
27	Parks Hwy & willo fishhook	2.46	\$53,875
82	Parks Hwy & N Nancy Lake	2.46	\$53,875
25	Parks Hwy & talkeetna spur	2.38	\$44,063
2	Point Mackenzie Junction (Burma / Ayrshire)	2.24	\$44,097
59	Talkeetna Spur & e second	2.04	\$56,641

DRAFT DATA

Make ACS and Other  
 Unlicensed Demographics  
 Easy to Get

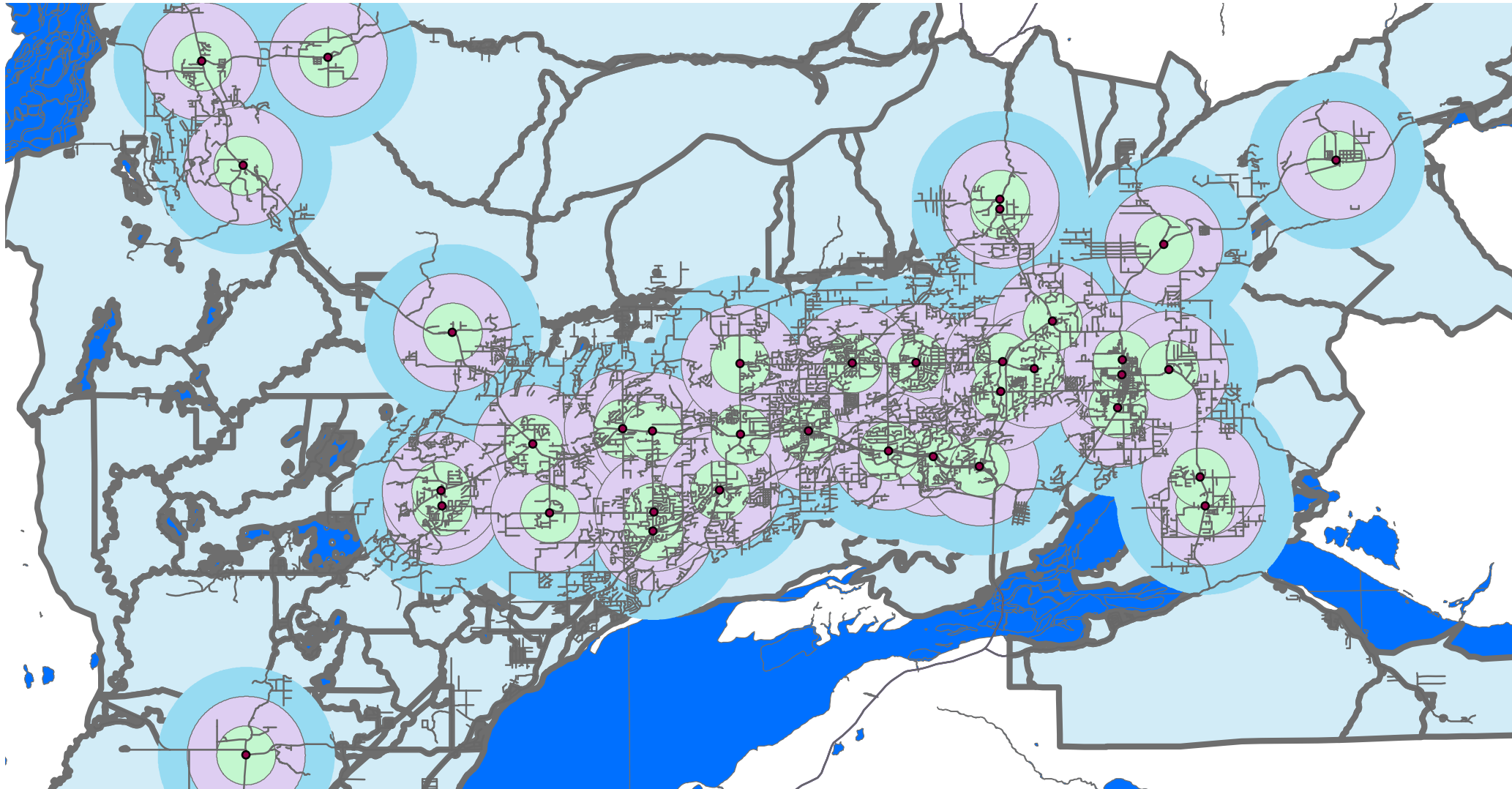
# Intersection Data - Data Formats

- Technical Users Can Download the Master File of
  - Master Table - Shape File
    - Comply with Metadata Requirements
    - Accurate Data
    - References and Footnotes
- Story Maps
  - Population and Dwelling Unit Forecast (Build-out Specific Data)
  - Demographic / Economic Characteristics
  - Infrastructure
  - Transportation / Traffic Data
- Photo and Data Content
- Printed Material and Power Point Projects For Stakeholders

# Single Data Reference Items – Composite Shape File

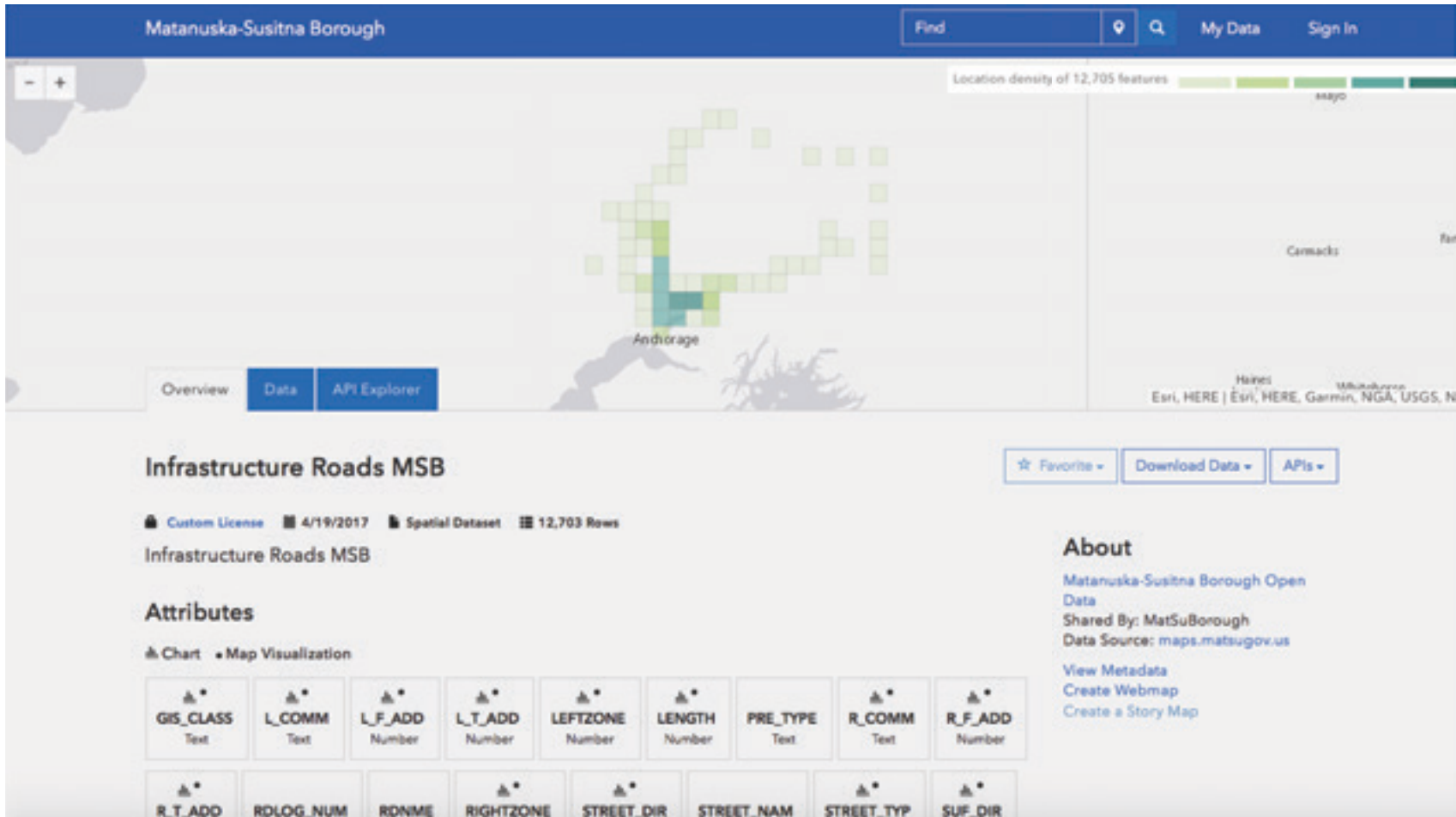
- Population and Dwelling Unit Forecasts
  - .5, 1 and 1.5-mile Radii – Population Data
  - Residential Year Built and Vacant Lots
- Demographic / Economic Characteristics
  - Population
  - Percentage Growth
  - Median Income
  - Other Data
- Infrastructure
  - Water
  - Road
  - Electricity
  - Sewer
  - Police and Municipal Jurisdiction
- Transportation / Traffic Data
  - Traffic Count
  - Type of Roadway
  - Lane Count
  - Signalization

# Multiple Attribute Data Example - Buffers Around Major Intersections – .5, 1, 1.5-Mile – DRAFT Data





# Master File Delivery Method – MSB Open Site

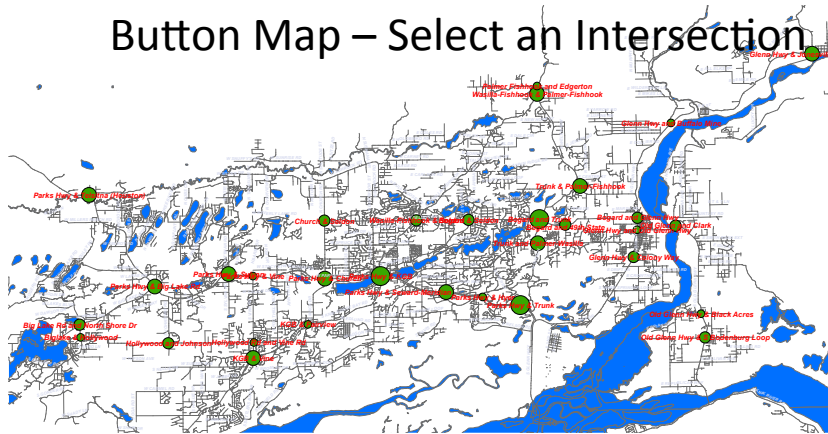


# Intersections Story Maps

- Button Navigation to Story Content
- Story Synopses by Category
  - Density & Demographics
  - Transportation
  - Infrastructure and Proximity
- Detailed Single Page Display by Intersection

# Draft Story Map Format – Density Story

Button Map – Select an Intersection



Int_Num		DU2010A_Half_Mi_Buffer	DUBOA_Half_Mi_Buffer	POP2010A_Half_Mi_Buffer	POPBOA_Half_Mi_Buffer	DU2010A_One_Mi_Buffer	DUBOA_One_Mi_Buffer	POP2010A_One_Mi_Buffer	POPBOA_One_Mi_Buffer	DU2010A_One&Half_Mi_Buffer	DUBOA_One&Half_Mi_Buffer	POP2010A_One&Half_Mi_Buffer	POPBOA_One&Half_Mi_Buffer
89	Big Lake Rd and North Shore Dr	87	119	178	248	349	478	713	993	785	1074	1605	2234

# Sample MSB Story Map







**It's Time for New Aerial Imagery**

With an estimated population of nearly 100,000 today and projections of 130,000 by 2027, the Matanuska-Susitna Borough is one of the fastest growing areas in the USA.

**Fast Growth = Many Changes**

Since aerial imagery was last flown in 2011:

- Significant progress has been made on the \$350 million Port MacKenzie Rail Extension project.
- Important upgrades have been made at Port MacKenzie.
- Over \$160 million has been spent on new public facilities like schools, libraries, and public safety buildings.
- Nearly \$130 million has been spent on new roads or upgrades to existing roads.
- Nearly 4,900 new structures (both public



# Transportation Metrics

Investment Category	Intersection Name	Current Lane Count	Current Signalization	L RTP - 2025 Road Improvements
1	Bogard and Trunk	4	Roundabout	4-Lane Road
1	Glenn Hwy & Arctic (Bogard)	4	Traffic Light	4-Lane Road
1	Glenn Hwy & Colony Way	2	Traffic Light	4-Lane Road
1	Parks Hwy and Big Lake Rd	2	Traffic Light	4-Lane Road
1	Parks Hwy and Church	4	Traffic Light	4-Lane Road
1	Parks Hwy and Hyer	4	Freeway Interchange	4-Lane Road
1	Parks Hwy and KGB	4	Traffic Light	4-Lane Road
1	Parks Hwy and N Nancy Lake	2	Traffic Light	4-Lane Road
1	Parks Hwy and Seward-Meridian	4	Freeway Interchange	4-Lane Road
1	Parks Hwy and Sylvan	4	Traffic Light	4-Lane Road
1	Parks Hwy and Trunk	4	Freeway Interchange	4-Lane Road
1	Parks Hwy and Vine	2	Stop on Secondary Rd.	4-Lane Road
1	Trunk and Palmer-Wasilla	4	Traffic Light	4-Lane Road
2	Church and Seldon	2	Stop on Secondary Rd.	2 Lane Addition
2	Trunk and Palmer-Fishhook	2	Stop on Secondary Rd.	2 Lane Addition
3	Big Lake Rd and North Shore Dr	2	Roundabout	None
3	Biglake & Hollywood	2	Traffic Light	None
3	Bogard & Seldon	2	Stop on Secondary Rd.	None
3	Bogard and 49th State	2	Roundabout	None
3	Glenn Hwy & Jonesville	2	Stop on Secondary Rd.	None
3	Glenn Hwy and Buffalo Mine	2	Stop on Secondary Rd.	None
3	Glenn Hwy and Old Glenn Hwy	2	Stop on Secondary Rd.	None
3	Hollywood and Johnson	2	Stop on Secondary Rd.	None
3	Hollywood Rd and Vine Rd	2	4-way Stop	None
3	KGB and Fairview Loop	2	Traffic Light	?
3	KGB and Vine	2	Traffic Light	?
3	Old Glenn and Clark	2	Stop on Secondary Rd.	None
3	Old Glenn Hwy and Black Acres	2	Stop on Secondary Rd.	None
3	Old Glenn Hwy and S Bodenburg Loop	2	Stop on Secondary Rd.	None
3	Palmer Fishhook and Edgerton	2	Stop on Secondary Rd.	None
3	Parks Hwy and Talkeetna Spur	2	Stop on Secondary Rd.	None
3	Parks Hwy and Telsitna (Houston)	2	Stop on Secondary Rd.	None
3	Parks Hwy and Willow-Fishhook	2	Traffic Light	None
3	Point Mackenzie Junction (Burma / Ayrshire)	2	Stop on Secondary Rd.	None
3	Talkeetna Spur and E Second	2	Stop on Secondary Rd.	None
3	Wasilla-Fishhook and Palmer-Fishhook	2	Stop on Secondary Rd.	None
3	Wasilla-Fishhook and Seldon	2	Stop on Secondary Rd.	None
3	Willow Fishhook and 4 Mile Rd	2	Stop on Secondary Rd.	None

DRAFT DATA

Proximity Rating	Intersection Name	Mileage to Parks / Glenn Hwy Junction Near Matsu Medical Center	Mileage to JBER
1	Parks Hwy and Trunk	1.1	11.1
1	Parks Hwy and Hyer	2.3	12.3
1	Trunk and Palmer-Wasilla	3.4	13.4
1	Bogard and Trunk	4.5	14.5
1	Trunk and Palmer-Fishhook	6.6	16.6
1	Parks Hwy and KGB	6.7	16.7
1	Bogard & Seldon	7.3	17.3
1	Glenn Hwy & Colony Way	7.4	17.4
1	Glenn Hwy & Arctic (Bogard)	8.7	18.7
1	Wasilla-Fishhook and Seldon	9.7	19.7
2	KGB and Fairview Loop	10	20
2	Old Glenn and Clark	11	21
2	Wasilla-Fishhook and Palmer-Fishhook	11	21
2	Church and Seldon	12	22
2	Glenn Hwy and Buffalo Mine	12	22
2	Parks Hwy and Vine	12	22
2	KGB and Vine	13	23
2	Parks Hwy and Sylvan	13	23
2	Hollywood and Johnson	17	27
2	Parks Hwy and Big Lake Rd	17	27
2	Old Glenn Hwy and Black Acres	18	28
2	Big Lake Rd and North Shore Dr	20	30
2	Glenn Hwy & Jonesville	20	30
3	Biglake & Hollywood	21	31
3	Parks Hwy and Church	22	32
3	Parks Hwy and Telsitna (Houston)	22	32
3	Point Mackenzie Junction (Burma / Ayrshire)	31	41
3	Parks Hwy and N Nancy Lake	32	42
3	Parks Hwy and Willow-Fishhook	36	46
3	Willow Fishhook and 4 Mile Rd	40	50
3	Parks Hwy and Talkeetna Spur	63	73
3	Talkeetna Spur and E Second	77	87
3	Bogard and 49th State		
3	Glenn Hwy and Old Glenn Hwy		
3	Hollywood Rd and Vine Rd		
3	Old Glenn Hwy and S Bodenburg Loop		
3	Palmer Fishhook and Edgerton		
3	Parks Hwy and Seward-Meridian		

DRAFT DATA

Proximity Metrics



Intersection	Law Enforcement	Water / Sewer	Electric
Big Lake Rd and North Shore Dr	Alaska Troopers	No Municipal Water / Sewer	MEA
Biglake & Hollywood	Alaska Troopers	No Municipal Water / Sewer	MEA
Bogard & Seldon	Alaska Troopers	W3	MEA
Bogard & 49th State	Palmer	???	MEA
Bogard and Trunk	Alaska Troopers	P2A	MEA
Church and Seldon	Alaska Troopers	No Municipal Water / Sewer	MEA
Glenn Hwy & Arctic	Palmer	Palmer	MEA
Glenn Hwy & Colony Way	Palmer	Palmer	MEA
Glenn Hwy & Jonesville	Alaska Troopers	No Municipal Water / Sewer	MEA
Glenn Hwy and Bogard Rd	Alaska Troopers	No Municipal Water / Sewer	MEA
Glenn Hwy and Buffalo Mine Rd	Alaska Troopers	No Municipal Water / Sewer	MEA
Hollywood and Johnson	Alaska Troopers	No Municipal Water / Sewer	MEA
KGB & Vine	Alaska Troopers	No Municipal Water / Sewer	MEA
KGB and Fairview Loop	Alaska Troopers	No Municipal Water / Sewer	MEA
Old Glenn and Clark	Alaska Troopers	No Municipal Water / Sewer	MEA
Old Glenn Hwy & Black Acres	Alaska Troopers	No Municipal Water / Sewer	MEA
Old Glenn Hwy & S Bodenburg Loop	Alaska Troopers	No Municipal Water / Sewer	MEA
Palmer Fishhook and Edgerton	Alaska Troopers	No Municipal Water / Sewer	MEA
Parks Hwy & Big Lake Rd	Alaska Troopers	No Municipal Water / Sewer	MEA
Parks Hwy & Church	Wasilla	Wasilla	MEA
Parks Hwy & Hyer	Alaska Troopers	W1	MEA
Parks Hwy & KGB	Wasilla	Wasilla	MEA
Parks Hwy & N Nancy Lake	Alaska Troopers	No Municipal Water / Sewer	MEA
Parks Hwy & Sylvan	Alaska Troopers	No Municipal Water / Sewer	MEA
Parks Hwy & Talkeetna Spur	Alaska Troopers	Talkeetna	MEA
Parks Hwy & Telsitna (Houston)	Alaska Troopers	No Municipal Water / Sewer	MEA
Parks Hwy & Trunk	Wasilla	Palmer	MEA
Parks Hwy & Vine	Alaska Troopers	No Municipal Water / Sewer	MEA
Parks Hwy & Willow Fishhook	Alaska Troopers	No Municipal Water / Sewer	MEA
Point Mackenzie Junction (Burma / Ayrshire)	Alaska Troopers	No Municipal Water / Sewer	MEA
Talkeetna Spur & e second	Alaska Troopers	Talkeetna	MEA
Trunk & Palmer-Fishhook	Alaska Troopers	No Municipal Water / Sewer	MEA
Trunk and Palmer-Wasilla	Alaska Troopers	P2A	MEA
Wasilla-Fishhook & Palmer-Fishhook	Alaska Troopers	No Municipal Water / Sewer	MEA
Wasilla-Fishhook & Seldon	Alaska Troopers	No Municipal Water / Sewer	MEA
Willow Fishhook and 4 Mile Rd	Alaska Troopers	No Municipal Water / Sewer	MEA

DRAFT DATA

Infrastructure

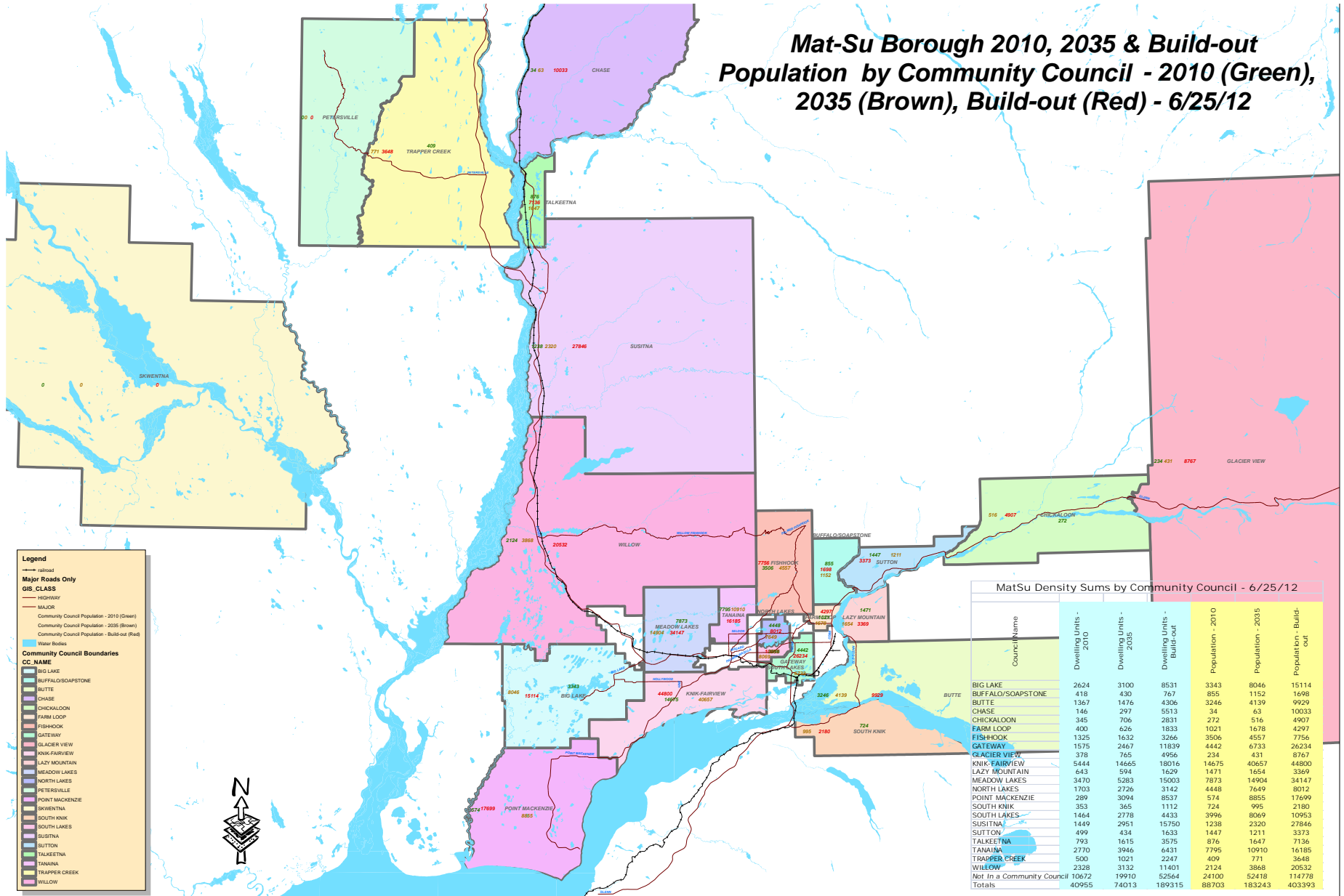
# Other Components Partially Developed

- School Attendance Areas
- Public Facility Needs
- Health Care Service Pattern
- Aviation Mapping
- Community Council Demographics
- Rough Parks and Open Space Adequacy –  
Categories and Standards Hard to Apply to AK

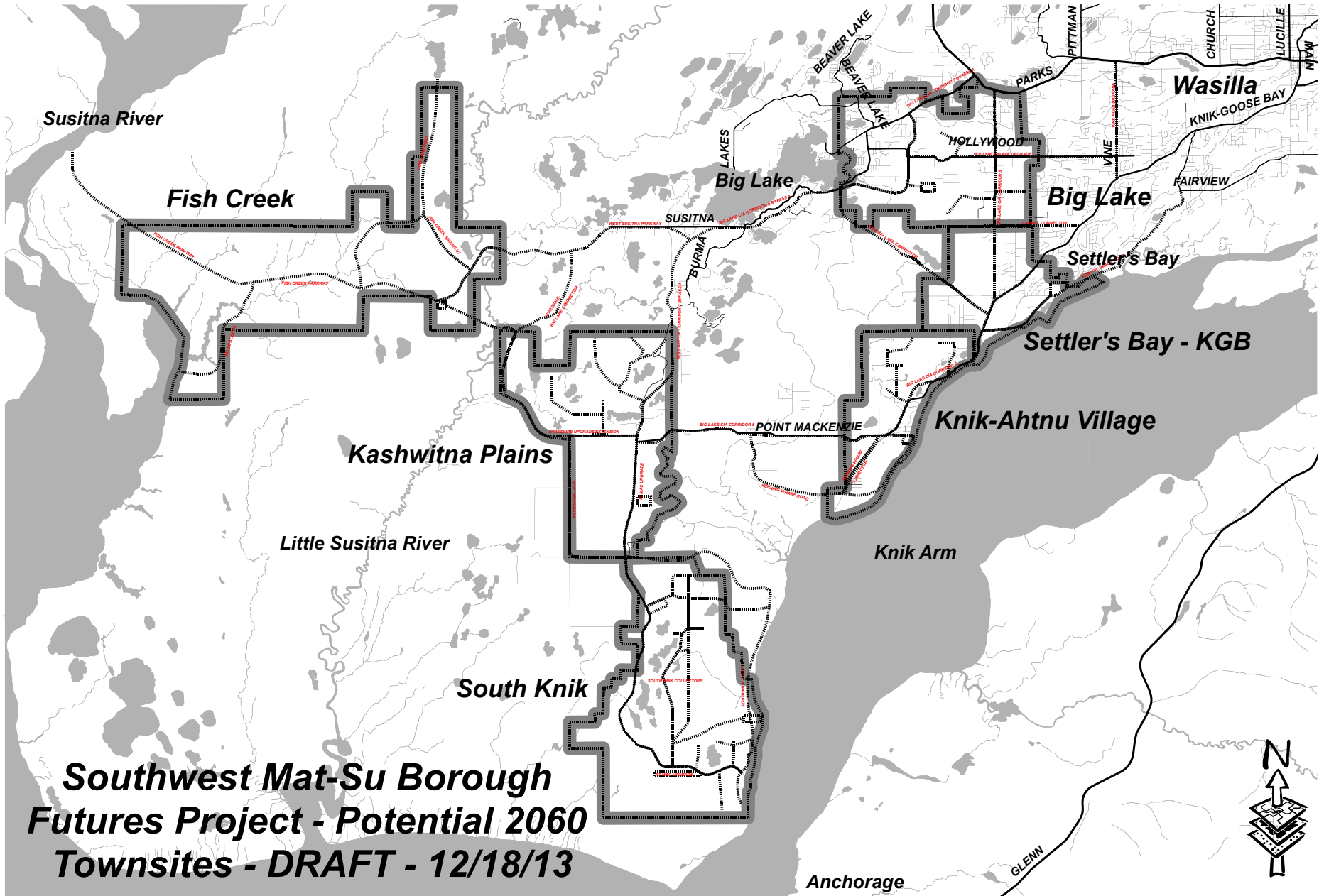


# Population by Community Council

*Mat-Su Borough 2010, 2035 & Build-out  
Population by Community Council - 2010 (Green),  
2035 (Brown), Build-out (Red) - 6/25/12*



# Southwest Borough Project – Potential New Towns



# Questions / Discussion

*Linking Demographics, Futures Simulation and Community Facilities Needs Assessment to Smart Communities Tools*

