

# Wireless Business Case Success



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## Key concepts and terms

- Net present value (NPV)
  - Muni benchmark full breakeven within 5 to 10 years
- Internal rate of return (IRR)
  - Private sector benchmark 30% or more within 5 years
- Capital expenditure (Capex)
  - Investment - you expect a return
- Operating expenditure (Opex)
  - Cost of doing business

***“Never appeal to a man's ‘better nature.’ He may not have one. Invoking his self-interest gives you more leverage.” RAH***

# Return on investment quantifies costs & benefits

- Primary ROI measures and analyses....
  - Money in
  - Money out
  - Value over time, including cost of money
- Provides hard numbers for decisions
  - Drives private sector investment and operations
- Second order effects evaluated separately
  - Economic development
  - Digital divide
  - Increased efficiency and service levels
  - Other policy-level considerations

# Costs depend on service model

- Hotspots
  - Cheap and easy, particularly if offered for free
- Internal data networking only
  - Public safety, meter reading, mobile workforce
  - Capex potentially under \$100K per square mile (or not)
  - Opex +/- 15% of capex annually for core network
- Universal service
  - Reach 90% to 95% of homes and businesses
  - Capex +/- \$250K per square mile
  - Opex +/- 30% of capex
  - Economies of scale begin at around 20 square miles
    - Build slowly, but can be significant for very large networks

***Common industry cost figures frequently limit scope of costs, and make overly optimistic assumptions about absorbing costs into existing operations, or relying on existing resources and staff.***

## Important opex factor: license fees

- Paid to manufacturers, integral to system
  - Usually bundled with support and maintenance
  - No other source for it
  - Could be used by vendors to offset low-ball hardware bids
- Third-party software and technology
  - Insist on a complete break out
  - Identify activity-based costs and other hidden escalators
  - Develop direct relationships with providers

***If vendors are adding cost, make sure they are also adding value that is specific to the cost...***

## All costs need to be factored in

- Any additional capex required?
- What are the wholesale costs of service?
- What will you need to run the business?
  - Billing, CRM, tech support, NOC
  - IT support, maintenance, advertising, marketing, legal, admin, etc.
  - Personnel and training: if a bidder says you can run the system with just the people you already have, *verify it*.
- Confirm that costs are truly independent
  - Watch out for vendor mandates

## Customer care is a critical area

- Standard budget is \$3 per sub per month
  - Assumes average of 1 call per sub per month
- WiFi problems can send cost through roof
  - Some people will never get good signals ~ 5%
  - Most will get good signals only with high power CPE ~75%
  - Some will do fine with retail-grade CPE ~20%
- Determining who fits into which category can require 5 to 10 calls to tech support
  - 10% to 15% will give up: a total loss
  - Many resist CPE upgrade

***Solid, competent engineering combined with reality-based expectations and service plans an absolute necessity....***

# Build the business model

- Model cash flow
  - Calculate ramp rates, revenue, other activity units
  - Subtract wholesale service costs
  - Subtract operating costs
- Model capital requirements
  - Vendor-dependent & independent costs
  - Fixed and variable
  - Operating capital
- Calculate key financial metrics
  - Cash flow, break even, net present value, internal rate of return



## Free is a good price but a bad model

<b>Deployed</b>		
Sunnyvale, Santa Clara, Cupertino	MetroFi	Free, ad supported with paid tier (few takers)
Tempe	MobilePro	Fee based wholesale
Lexington, Colorado Springs, Hillsboro	Skytel	Free now but biz model is fee based
<b>In Progress</b>		
Anaheim, Milpitas, Philadelphia	Earthlink	Fee based, tiered pricing
San Francisco	Earthlink/Google	Free with paid tiers
Mountain View	Google	Free
Brookline	Galaxy/MobilePro	Fee based WiFi + 4.9GHz govt tier
Portland, Aurora	MetroFi	Free WiFi + paid 4.9GHz govt tier

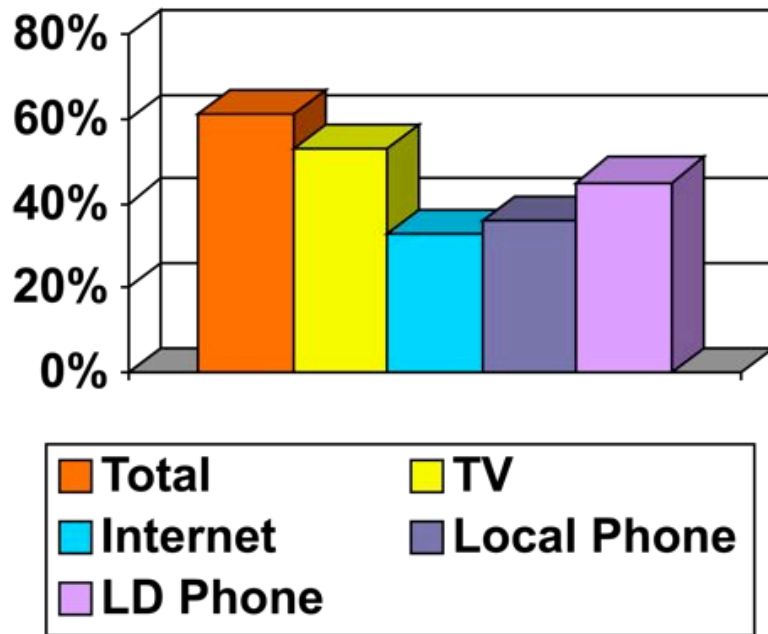
***Free sounds good, but it's not reality...***

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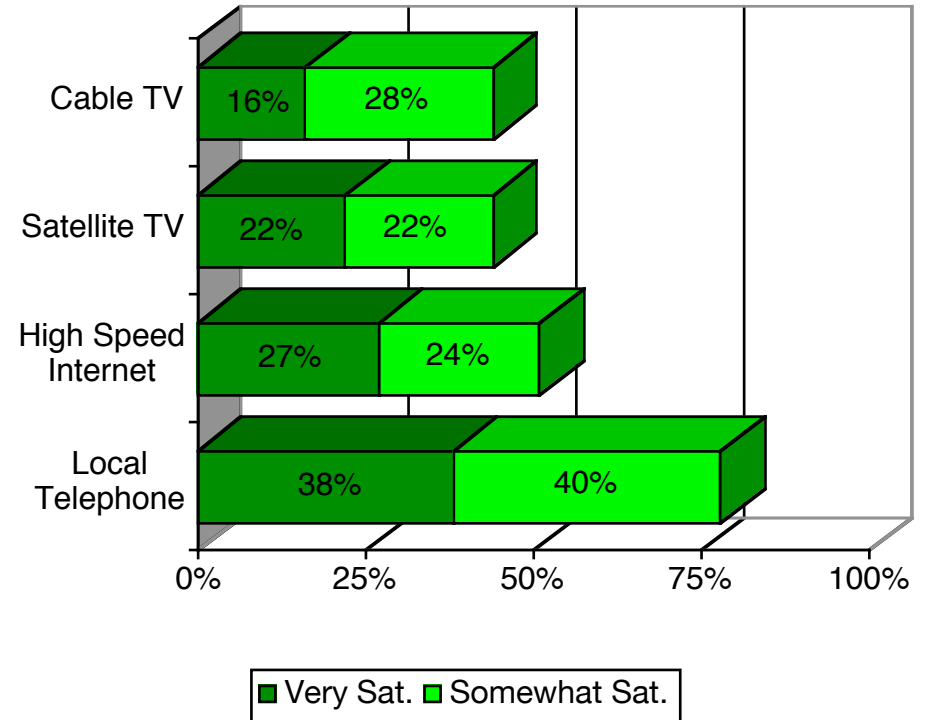
June 2006. Source: Linda Kalcic - SkyPilot, MetroFi, WCA, Tellus Venture Associates

# Lompoc project driven by public demand

**Broadband Utility Take Rate**



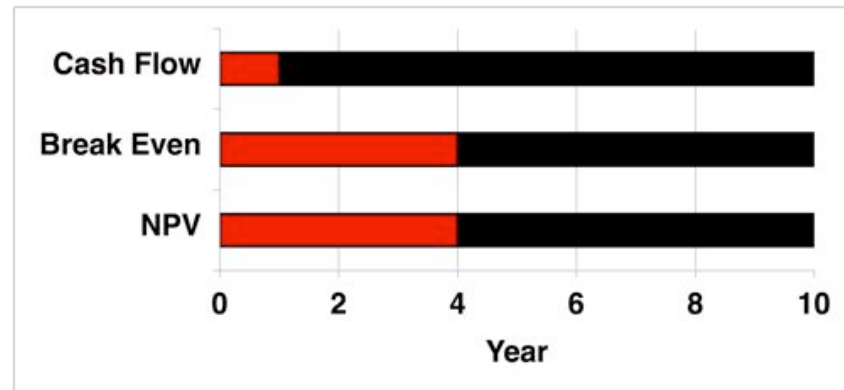
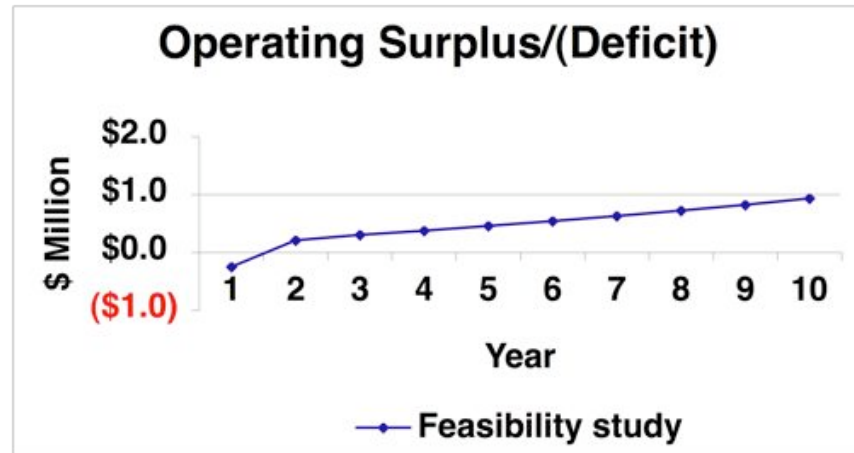
**Satisfaction With Service Choices**



***Sufficient demand exists in the City of Lompoc for a competitive telecommunications system offering television, telephone and Internet services.***

# Lompoc WiFi decision based on ROI

Feasibility Study	
Capex (upfront)	\$1,200
Year 10 Metrics:	
Opex	\$1,050
Margin	\$933
NPV	\$2,559
IRR	33%

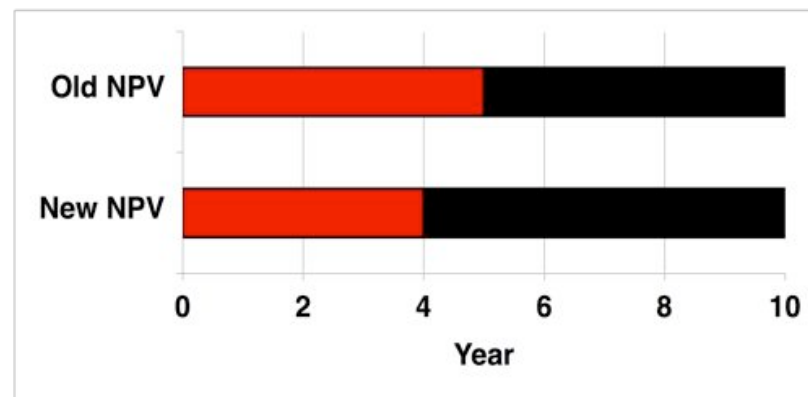
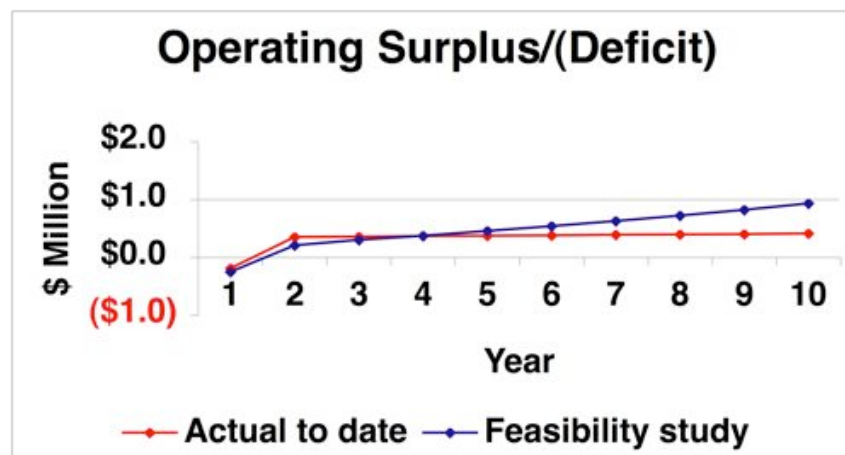


***Feasibility study showed significant surpluses, after all capital costs are considered, within 10 years.***

# Plan adapted to real world results

	Feasibility Study	Actual to Date
Capex (upfront)	\$1,200	\$1,500 (over run paid by contractor)
Year 10 Metrics:		
Opex	\$1,050	\$600
Margin	\$933	\$413
NPV	\$2,559	\$927
IRR	33%	17%

Current figures are pro forma estimates for comparison purposes only and do not necessarily represent approved budget items.

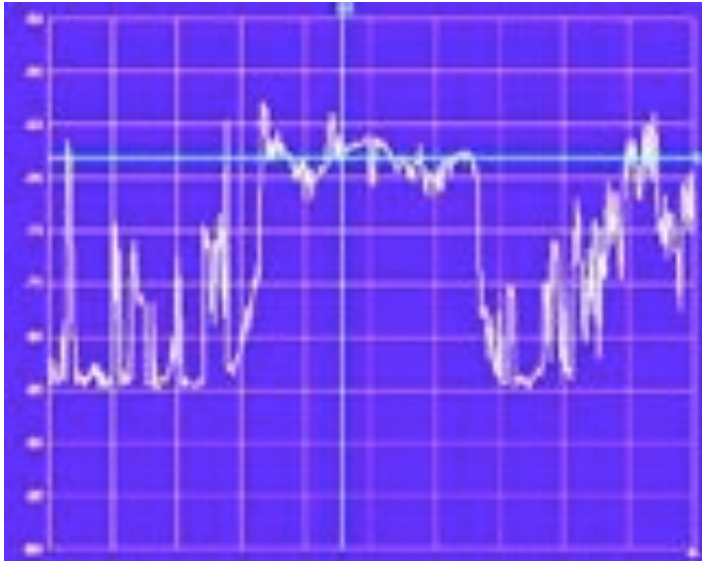


***Higher capital costs partially offset by lower operating costs, however lower revenue projections pushed surpluses lower.***

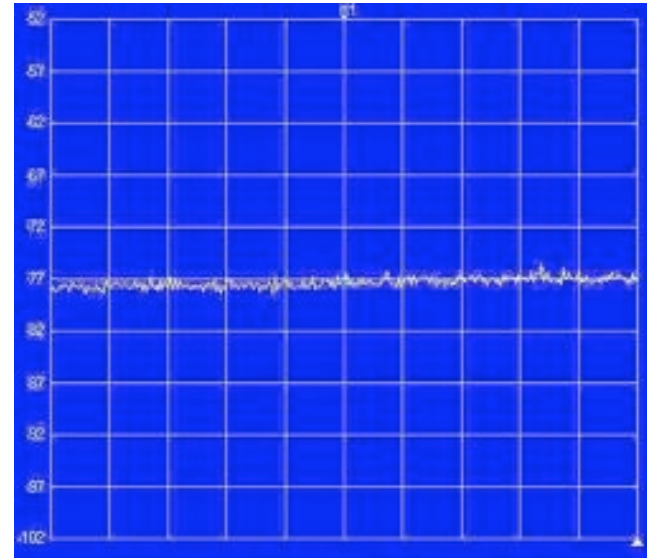
# In Folsom, it's about the business model

- Anchor tenants make Folsom business case
  - Substitution opportunity - Folsom \$35K
  - Intel has plant in Folsom
  - SMUD, Verizon, college also interested
  - Vertical markets - 2 hospitals in Folsom
  - Hot spot, hosting, ad hoc segments
- Lompoc - bottom up consumer demand exists
  - \$20 price point quantitatively tested
  - Competition lags, but now motivated to catch up

## Room is available for new service



WiFi frequencies



WiMAX frequencies

***Folsom already has a lot of WiFi users and hotspots, but frequencies earmarked for WiMAX are very quiet.***

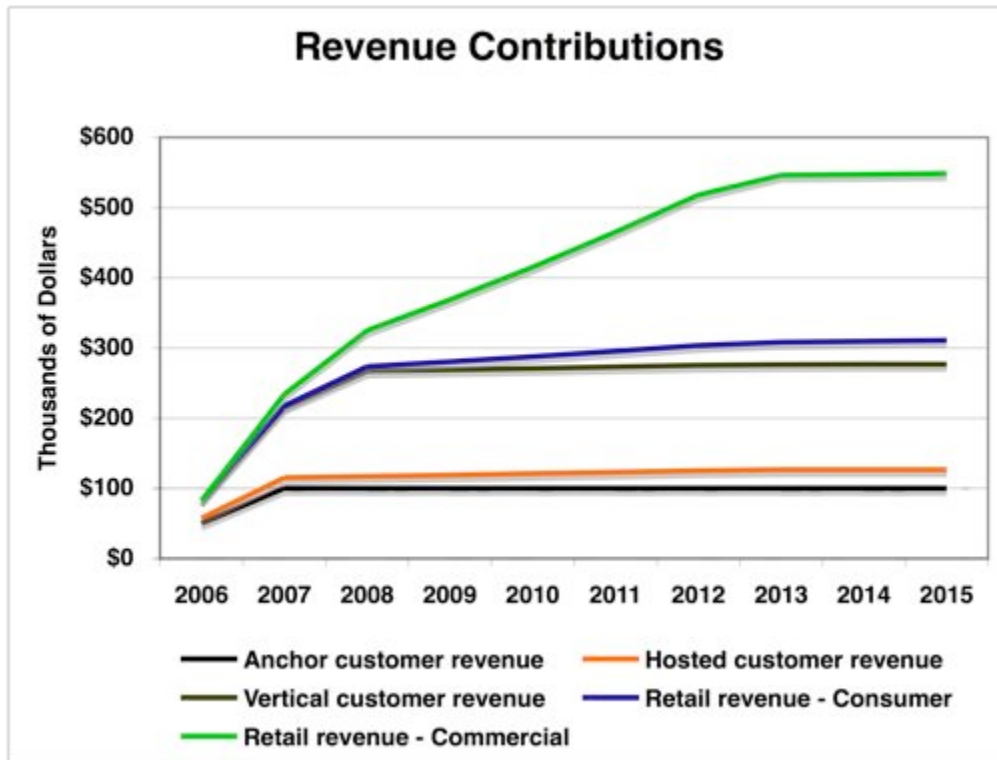
# WiMAX is an opportunity to grow



- Inexpensively provides new networking capability
  - Create new opportunities for small and large businesses
  - Reduce costs, increase service for large organizations
  - Aid research & development
- Partnership opportunities
  - WiFi hotspots
  - New consumer services
- Can expand to directly serve consumers

***Key to success is to focus on serving existing needs with greater flexibility and lower cost.***

## Folsom model puts revenue first



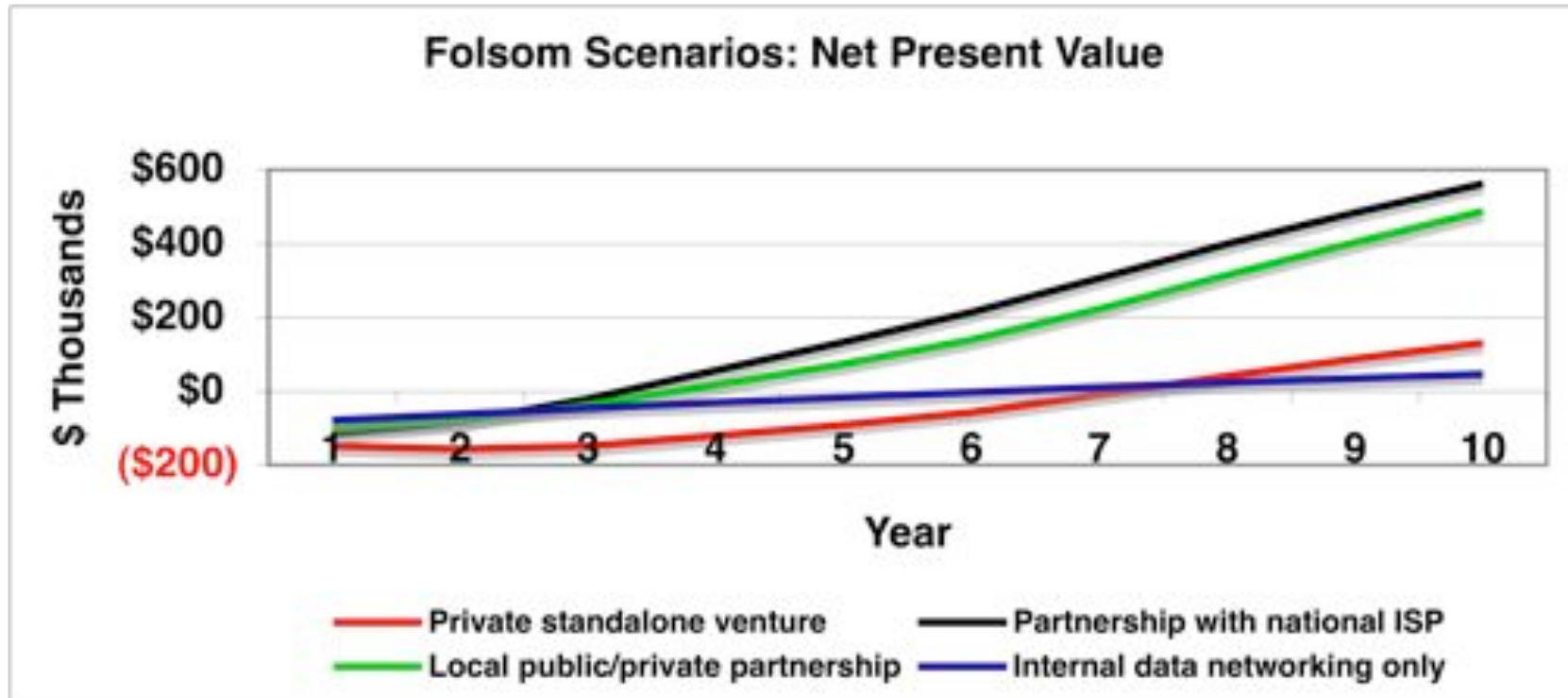
- Four scenarios
  - Standalone business
  - Local consortium
  - ISP partner
  - Membership
- Self supporting with user buy-in
  - Capex \$100K-\$200K
- Partners create growth
  - ISPs need options
  - Specific sectors, such as health care
  - Open to new ventures

***Allows existing businesses to expand & develop, creates opportunities for new businesses, improves service for all.***

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# Folsom WiMAX scenarios evaluated by ROI



	Total Capital	Years to Positive Cash Flow	Years to Break Even	5 Year IRR	10 Year IRR
Private standalone venture	\$174	3	7	(16%)	22%
Partnership with national ISP	\$128	2	4	47%	66%
Local public/private partnership	\$106	2	4	29%	52%
Internal data networking only	\$83	2	6	(5%)	17%

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# Questions?

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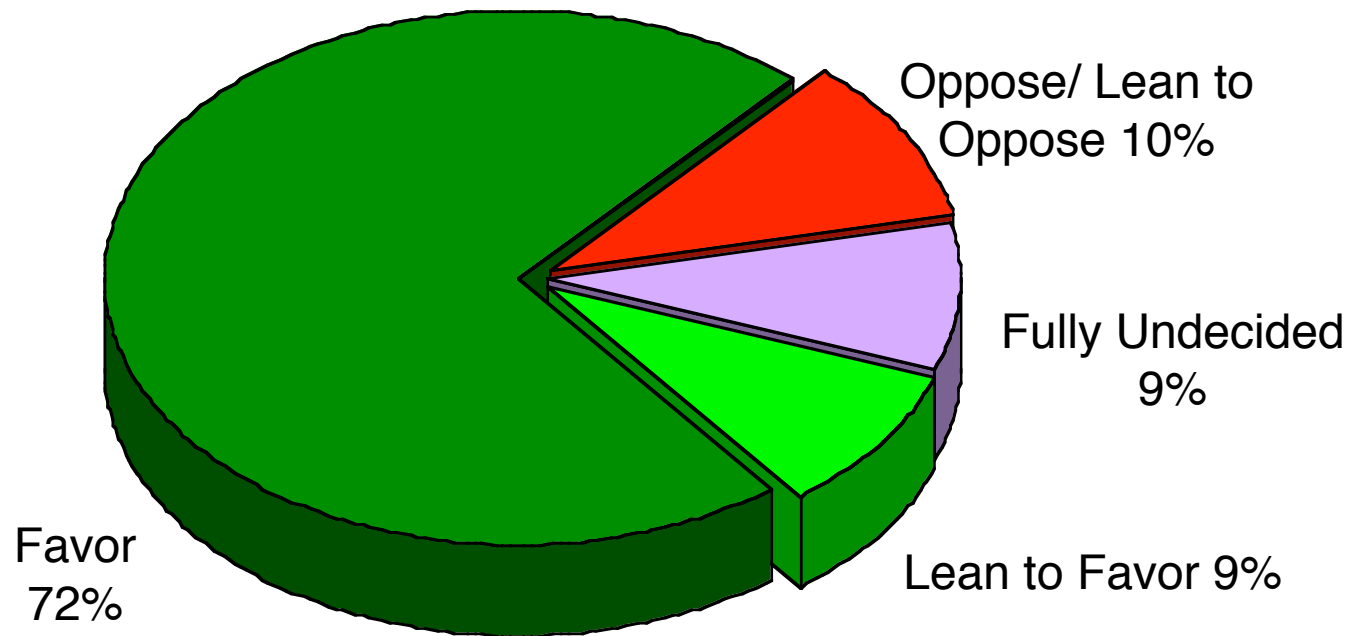
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**Back up Slides**

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# What Do Lompoc People Think About The City Providing These Services?

Position On City Network



***Public opinion of City services in general, and a prospective City owned broadband network in particular, is very positive.***

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# What Do Lompoc People Think?

