Wireless Business Case Success

ISPCon Santa Clara • 9 November 2006

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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

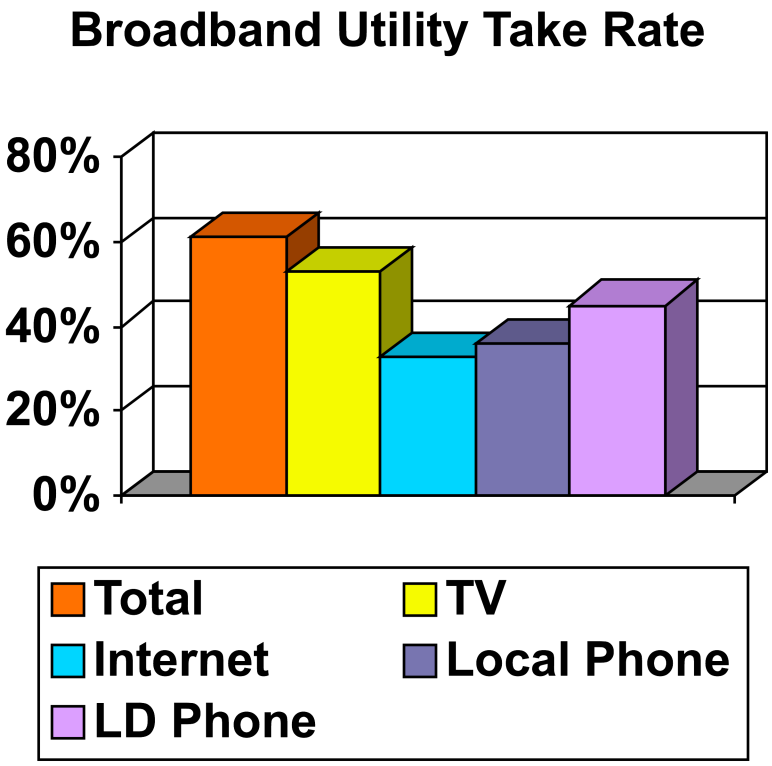
Free is a good price but a bad model

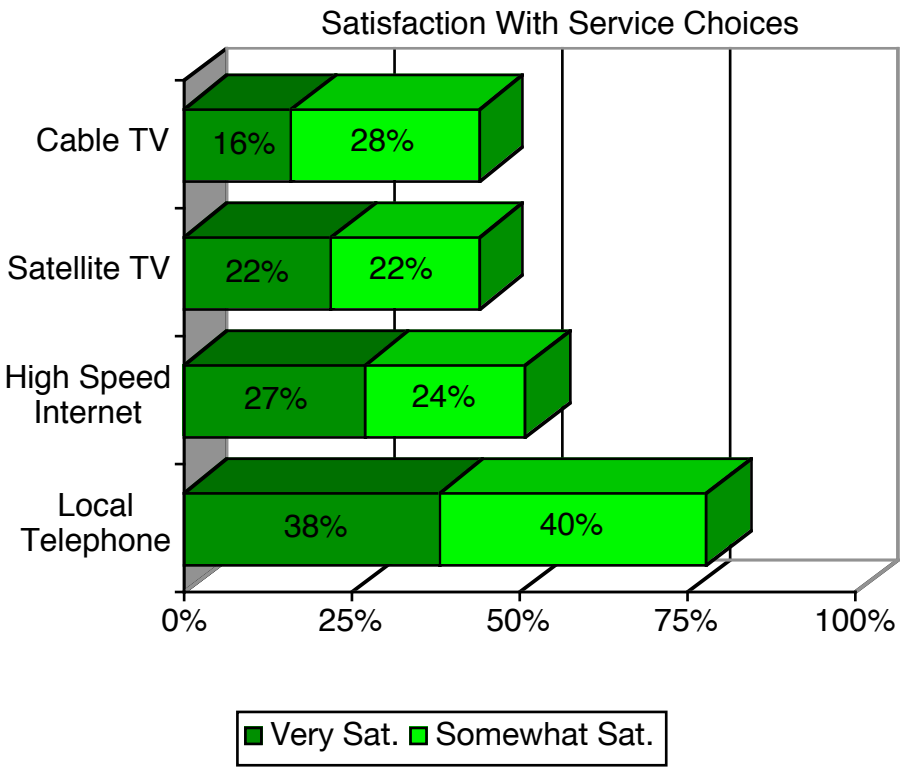
Deployed		
Sunnyvale, Santa Clara, Cupertino	MetroFi	Free, ad supported with paid tier (few takers)
Tempe	MobilePro	Fee based wholesale
Lexington, Colorado Springs, Hillsboro	Skytel	Free now but biz model is fee based
In Progress		
Anaheim, Milpitas, Philadelphia	Earthlink	Fee based, tiered pricing
San 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...

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

Lompoc project driven by public demand

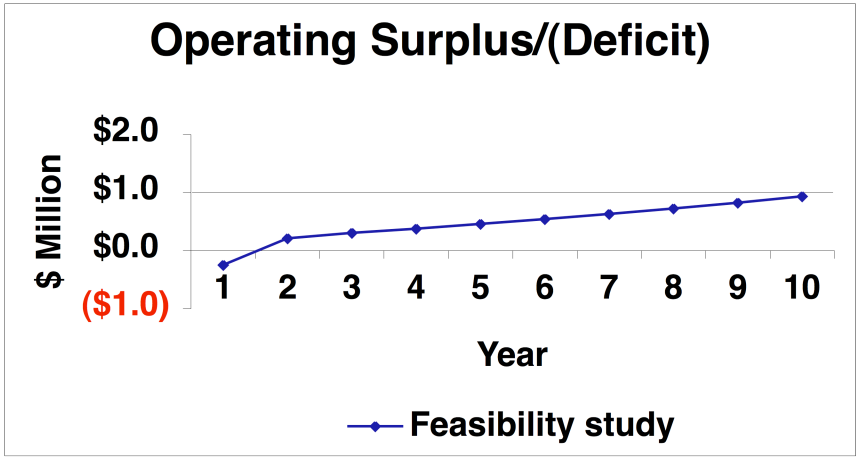


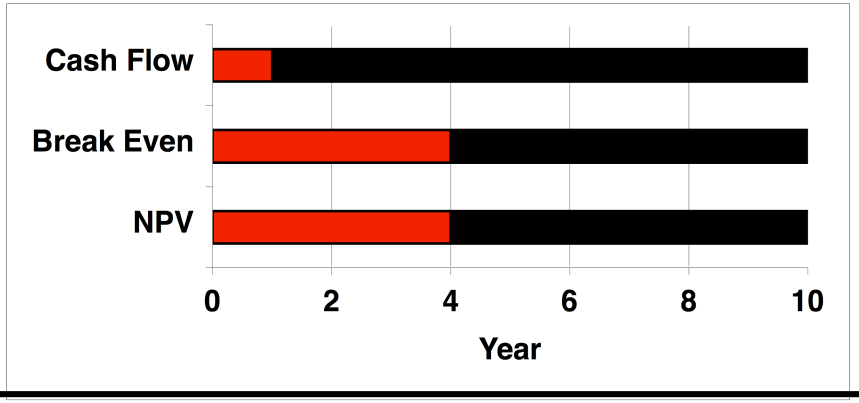


Sufficient demand exists in the City of Lompoc for a competitive telecommunications system offering television, telephone and Internet services.

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%



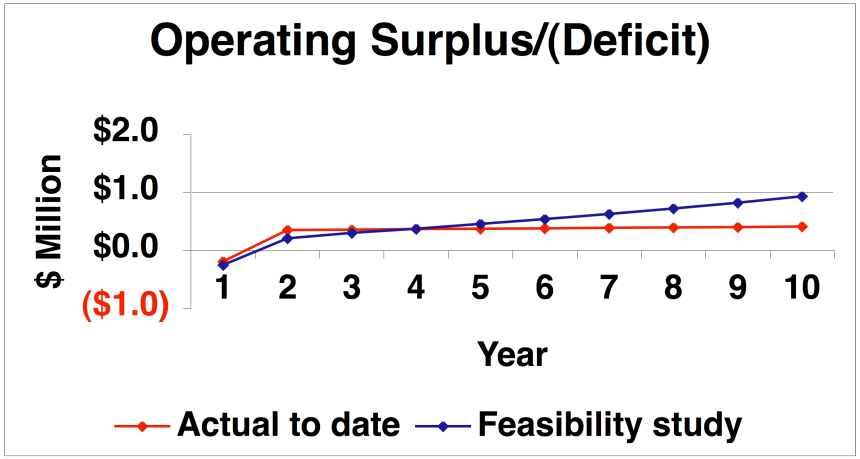


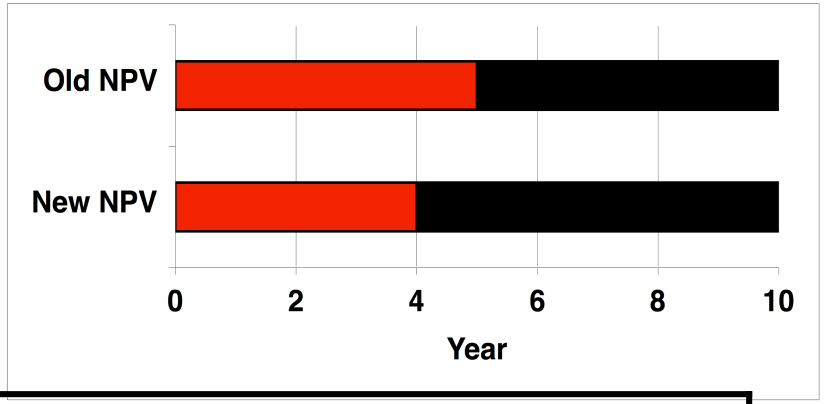
Feasibility study showed significant surpluses, after all capital costs are considered, within 10 years.

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.



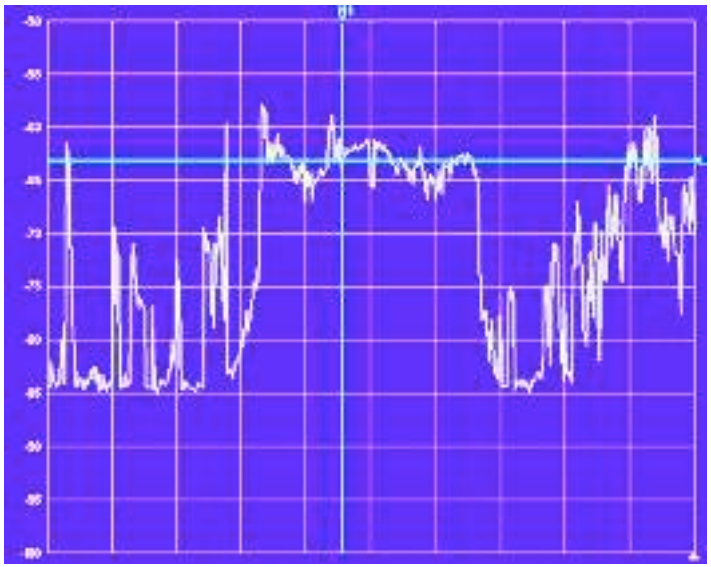


Higher capital costs partially offset by lower operating costs, however lower revenue projections pushed surpluses lower.

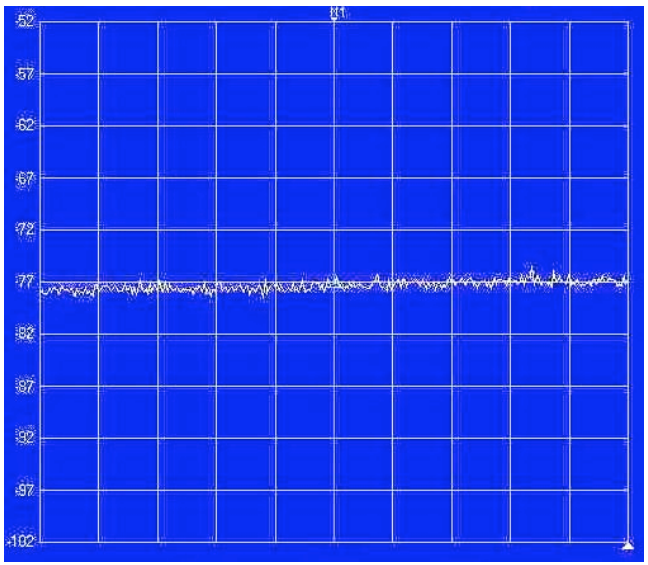
In Folsom, it's about the business model

- 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



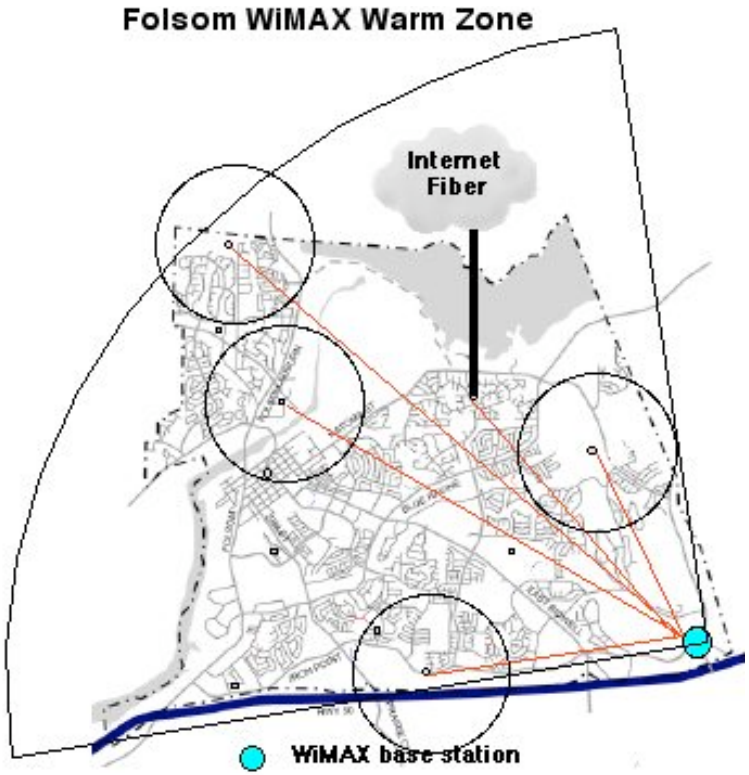
WiFi frequencies



WiMAX frequencies

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

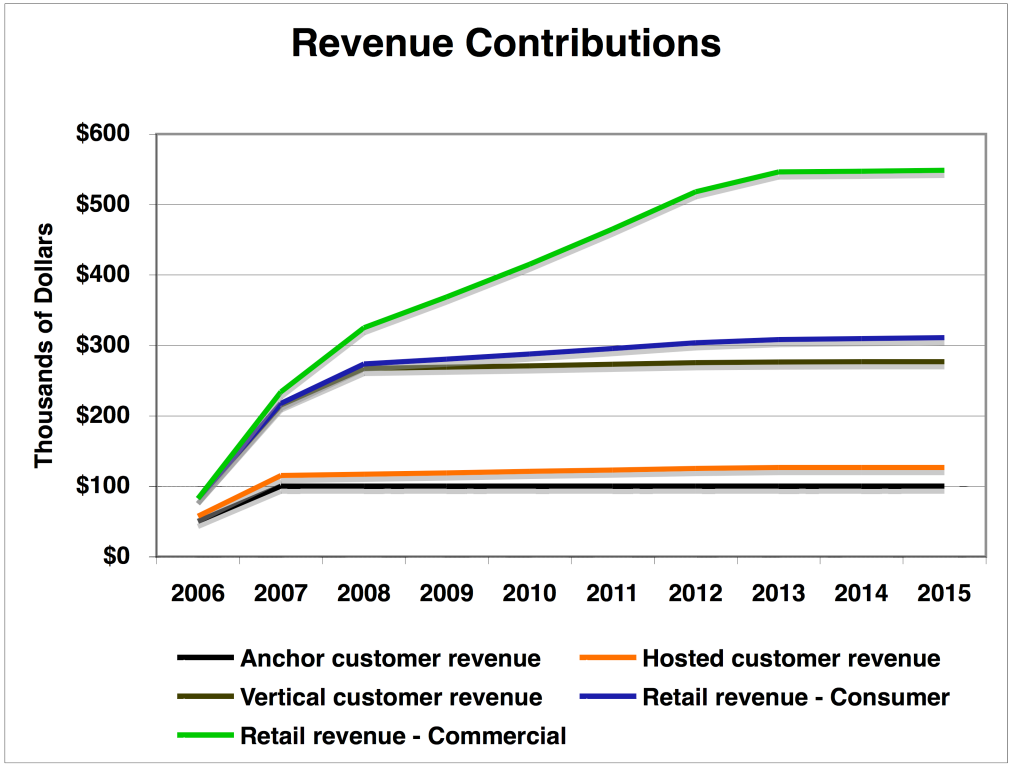
WiMAX is an opportunity to grow



- 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.

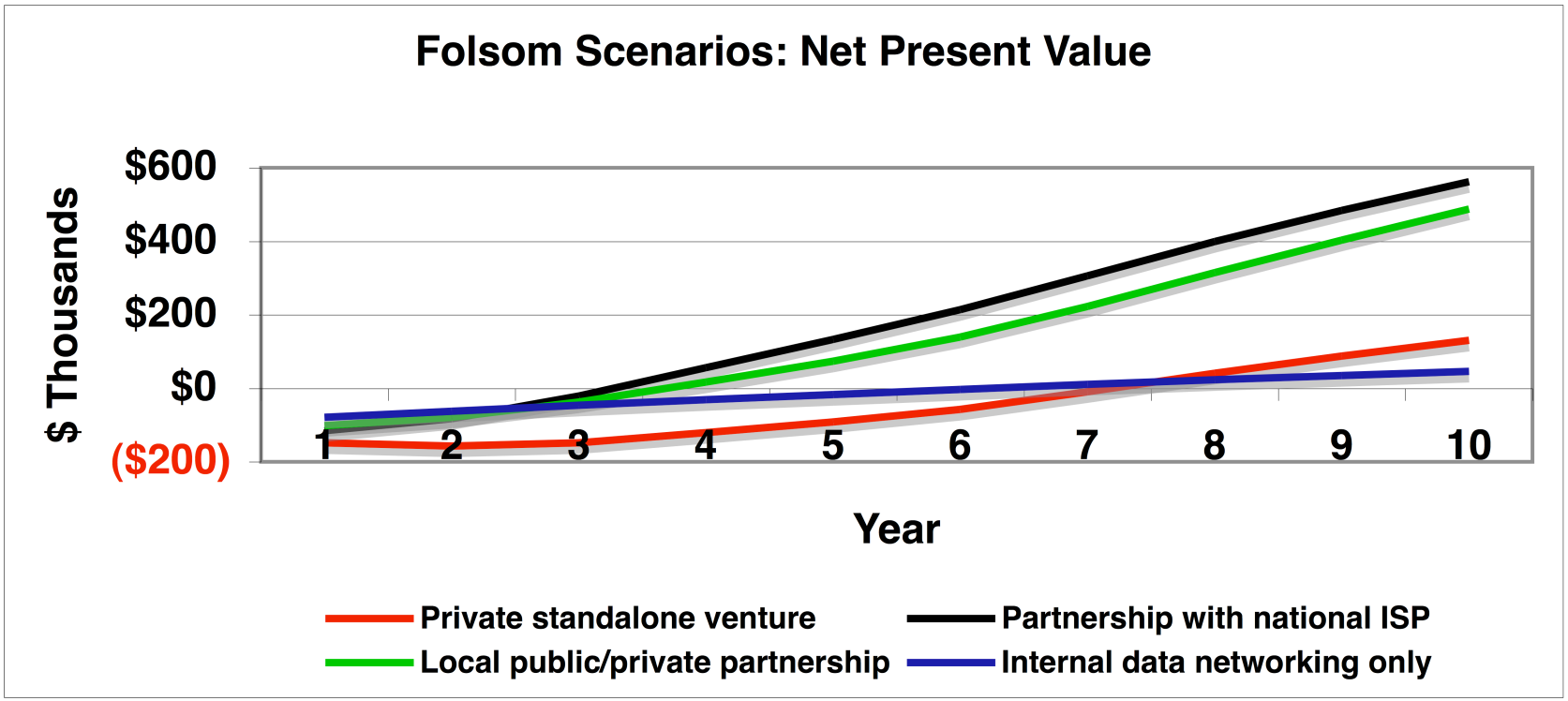
Folsom model puts revenue first



- 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.

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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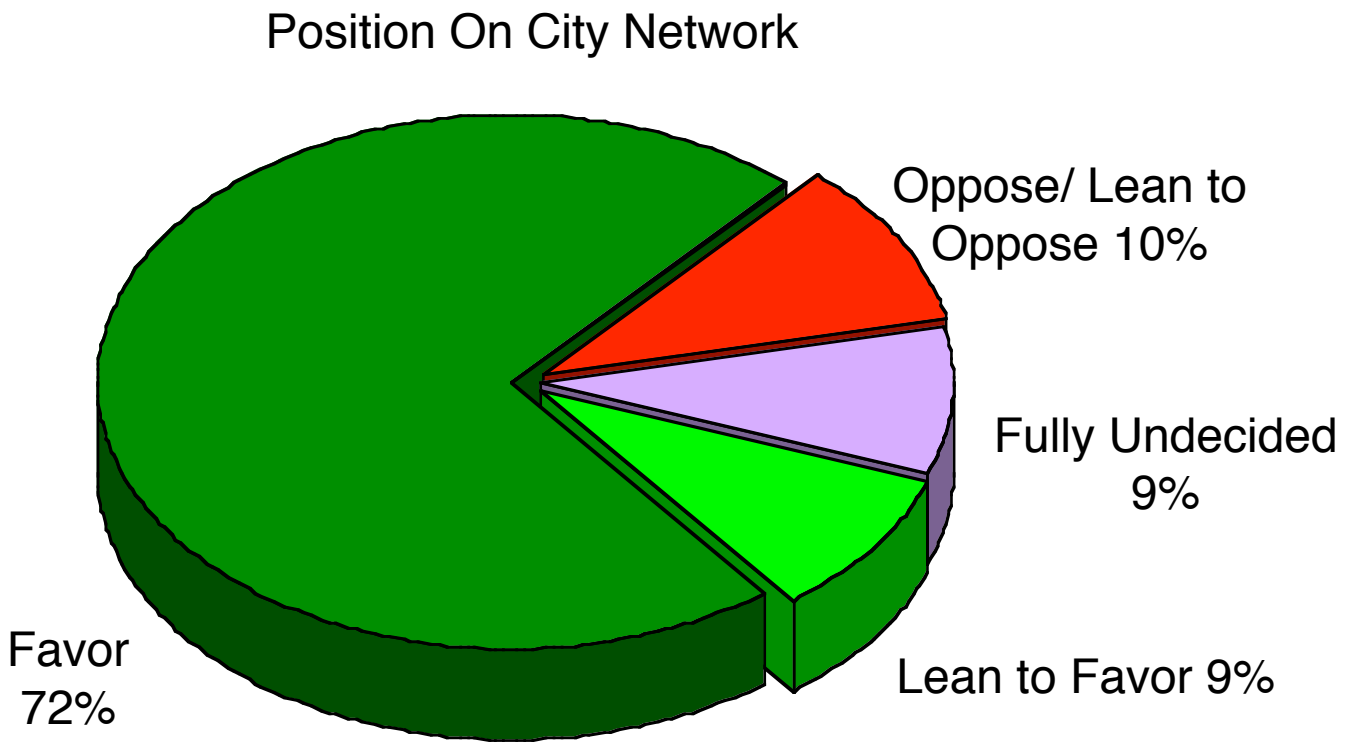
Back up Slides

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



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

What Do Lompoc People Think?