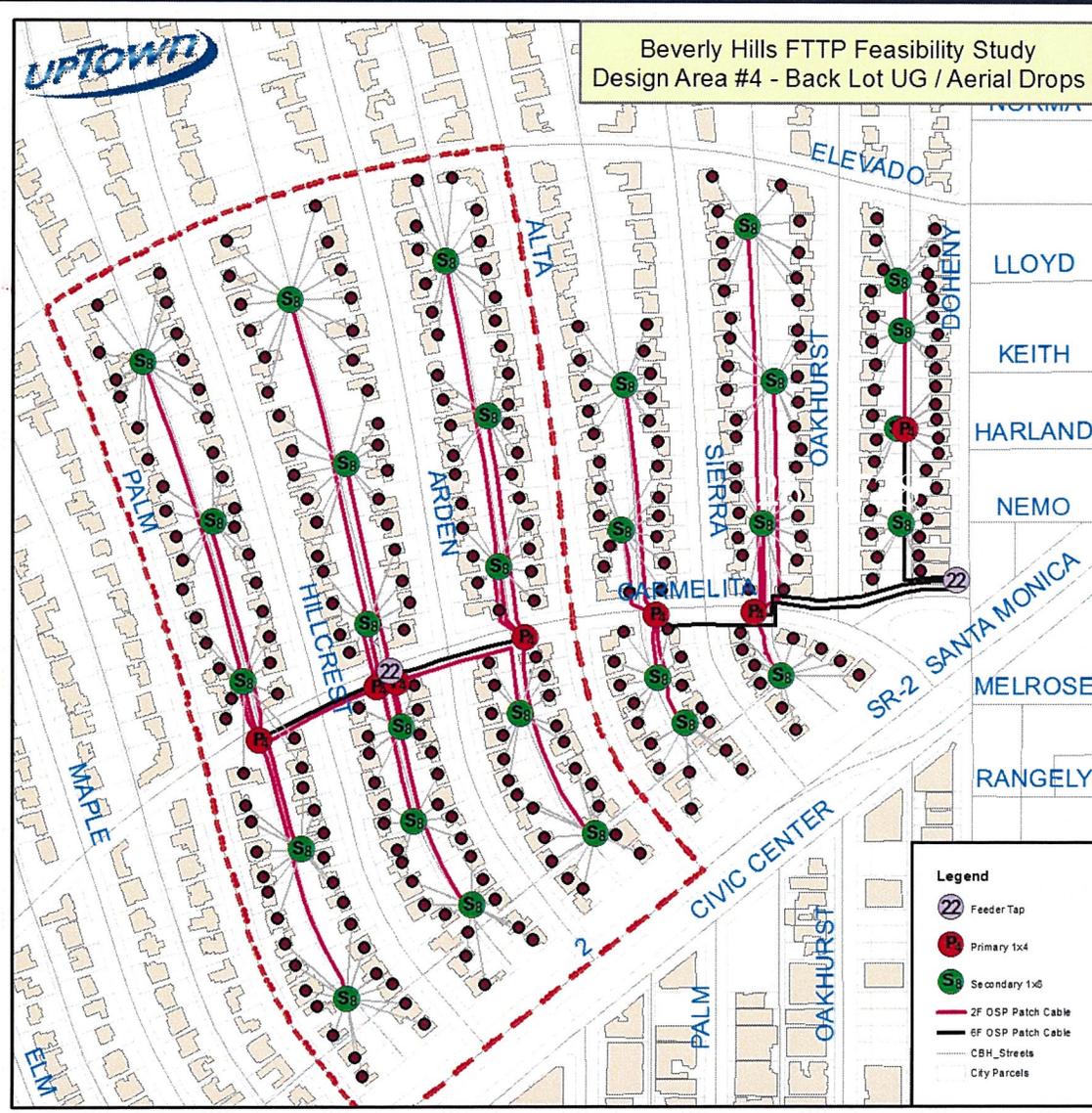


# AREA #4 – BACK LOT UG FEEDER WITH AERIAL DROPS

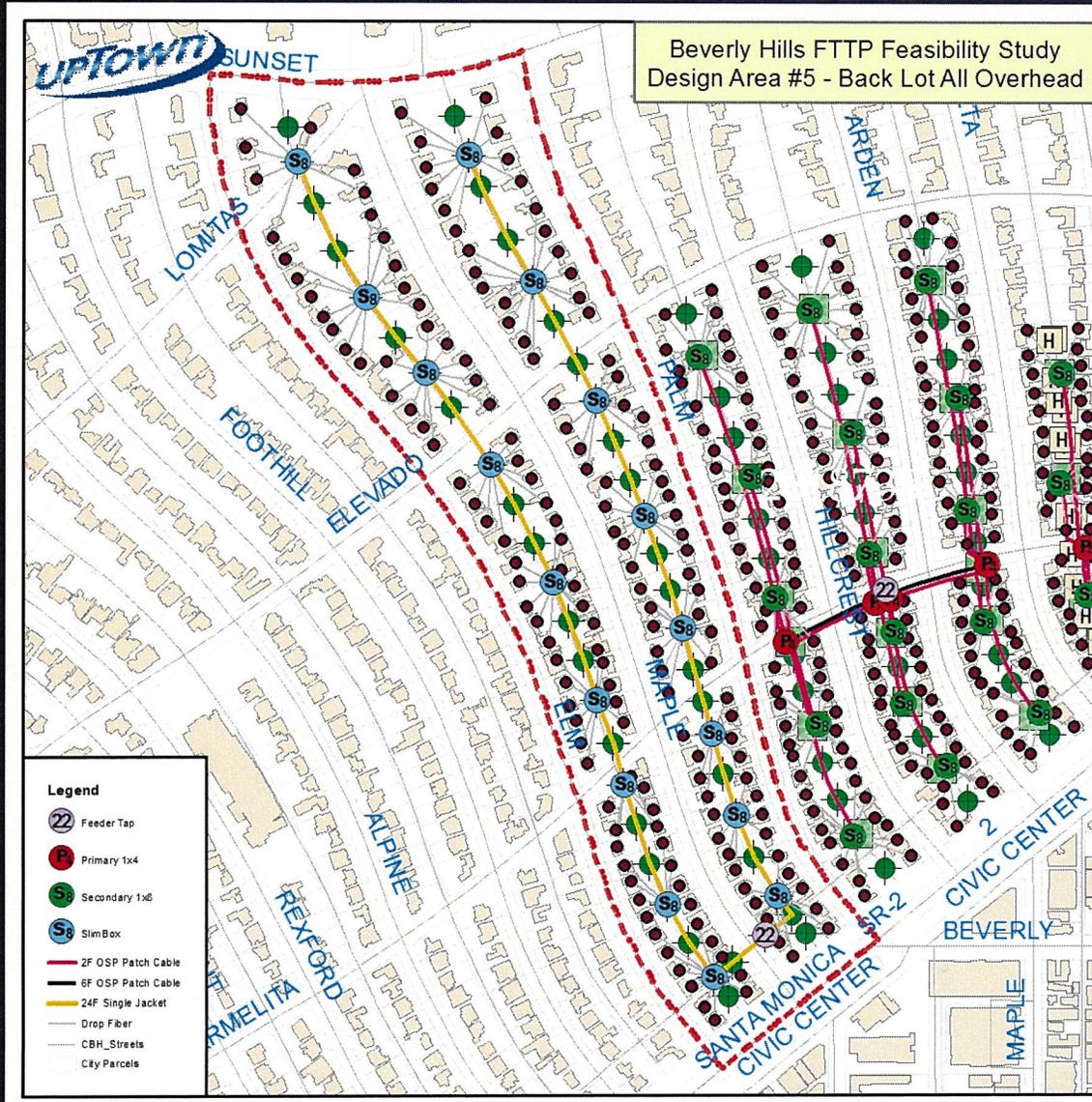


Beverly Hills FTTP Feasibility Study  
Design Area #4 - Back Lot UG / Aerial Drops

Design Metric	Value
Aerial Plant Miles	0.0
Underground Plant Miles	1.4
% Aerial	0%
% UG	100%
Passings	174
Passings per Mile of Plant	123
Materials Cost per Passing	\$129
Labor Cost per Passing	\$2,245
<b>Total Cost per Passing</b>	<b>\$2,374</b>
Total Materials (no drops)	\$22,369
Total Labor (no drops)	\$390,632
<b>Total Cost</b>	<b>\$413,001</b>

\* - Does not include engineering, fixed equipment, subscriber capital and installation costs.

# AREA #4 – BACK LOT UG FEEDER WITH AERIAL DROPS



Design Metric	Value
Aerial Plant Miles	1.5
Underground Plant Miles	0.0
% Aerial	100%
% UG	0%
Passings	165
Passings per Mile of Plant	111
Materials Cost per Passing	\$94
Labor Cost per Passing	\$229
<b>Total Cost per Passing</b>	<b>\$322</b>
Total Materials (no drops)	\$15,448
Total Labor (no drops)	\$37,755
<b>Total Cost</b>	<b>\$53,202</b>

\* - Does not include engineering, fixed equipment, subscriber capital and installation costs.



## SERVICE AREA CHARACTERIZATION

Dwelling Type	Buildings			Percent of Total Buildings		
	Overhead Service	Underground Service	Total Buildings	Overhead Service	Underground Service	Total Buildings
Single Family	4,063	1,653	5,716	53%	21%	74%
MDU	1,225	77	1,302	16%	1%	17%
Commercial	444	232	676	6%	3%	9%
Mixed Use	-	4	4	0%	0%	0%
<b>Total</b>	<b>5,732</b>	<b>1,966</b>	<b>7,698</b>	<b>74%</b>	<b>26%</b>	<b>100%</b>

Dwelling Type	Dwellings (Estimate)			Percent of Total Dwellings		
	Overhead Service	Underground Service	Total Buildings	Overhead Service	Underground Service	Total Buildings
Single Family	4,063	1,653	5716	25%	10%	35%
MDU	1,225	77	1302	53%	3%	56%
Commercial	444	232	676	6%	3%	9%
Mixed Use	-	4	4	0%	0%	0%
<b>Total</b>	<b>5,732</b>	<b>1,966</b>	<b>7,698</b>	<b>84%</b>	<b>16%</b>	<b>100%</b>



# SAMPLE DESIGN SUMMARY

Sample Design Area	OH Miles	UG Miles	Passings	Passings per Mile	Weight	Materials per Passing	Labor per Passing	Total per Passing
#1 - Front Lot High Density	0.0	1.3	180	139	0%	\$131	\$1,029	\$1,160
#4 - Back Lot with Aerial Drops	0.0	1.4	174	123	0%	\$129	\$1,195	\$ 1,324
#3 - Back Lot All UG	0.0	1.5	120	81	0%	\$176	\$1,714	\$1,890
#2 - Front Lot Low Density	0.0	2.9	155	53	10%	\$226	\$2,588	\$2,813
#5 - All Overhead	1.5	0.0	165	111	25%	\$94	\$229	\$322
MDU Overhead	0.0	0.0	-	-	53%	\$47	\$114	\$161
MDU UG	0.0	0.0	-	-	3%	\$176	\$1,714	\$1,890
Commercial Overhead	0.0	0.0	-	-	6%	\$94	\$229	\$322
Commercial UG	0.0	0.0	-	-	3%	\$352	\$3,429	\$3,781
<b>Weighted Average / Total</b>	<b>1.5</b>	<b>7.1</b>	<b>794</b>		<b>100%</b>	<b>\$93</b>	<b>\$554</b>	<b>\$647</b>

\* - MDU and commercial sample designs not completed.

Outside Plant Costs	Weighted Average Per Passing	Total Construction Cost @ 15,500 Passings (NOTE: Does not include other system costs e.g. electronics and operations)
Materials	\$93	\$1,532,555
Labor	\$554	\$9,138,135
<b>Total</b>	<b>\$647</b>	<b>\$10,670,690</b>
Contingency @ 25%*	\$162	\$2,667,672
<b>Total</b>	<b>\$808</b>	<b>\$13,338,362</b>

### Key Construction Costs

- ❖ Aerial fiber placement - \$3.38 per sheath foot
- ❖ Directional boring in landscaped areas - \$24.50 per foot
- ❖ Directional boring in asphalt or concrete areas - \$48.00 per foot
- ❖ Pulling fiber in conduit - \$1.00 per sheath foot
- ❖ Splicing - \$30 per splice

\* - Contingency based on unknowns related to servings each dwelling a large number of multi-tenant buildings

# Financial Feasibility Analysis

## FTTP Business Case

- ▣ Customer / Technical Service Representatives (CSRs/TSRs)
  - CSRs handle inbound/office sales, order entry and first tier support
  - TSRs handle all second tier customer support and service provisioning
- ▣ Install Technicians
  - Each install technician can complete three new customer installs per day
  - Requires the use of five temporary contract employees in peak years
- ▣ Service Technicians
  - Service techs fix subscriber problems
  - FTE based on the number of truck rolls related to service and churn
- ▣ Network Technicians
  - Network techs maintain the fiber system from the backbone to the network access point
  - Network tech is most senior tech in the line crew
- ▣ Minimum coverage factored into all position requirements



## BROADBAND HEADCOUNT REQUIRED

Staff Position	Year1	Year2	Year3	Year4	Year5
Broadband Manager	1.0	1.0	1.0	1.0	1.0
Marketing / PR Coordinator	0.5	1.0	1.0	1.0	1.0
MDU Account Manager	0.0	1.0	1.0	1.0	1.0
Commercial Account Rep	0.0	1.0	1.0	1.0	1.0
Data / Video Technician	1.0	2.0	2.0	2.0	2.0
Field Service Supervisor	0.0	0.0	1.0	0.0	0.0
Customer Service Rep	0.0	3.0	3.0	3.0	3.0
Technical Service Rep	0.0	3.0	3.0	3.0	3.0
Install Technician	0.0	3.0	7.0	5.0	4.0
Network Technician	1.0	2.0	2.0	2.0	2.0
Service Technician	0.0	1.0	1.0	2.0	2.0
<b>Total Headcount</b>	<b>3.5</b>	<b>18.0</b>	<b>23.0</b>	<b>22.0</b>	<b>20.0</b>



## BENCHMARKING ANALYSIS - STAFFING

Staff Position	A	B	C	D	E	F	CBH*
<b>Residential Connections</b>	4,867	1,934	2,239	2,563	5,998	13,500	6,480
CSRs - Shared	4.0	1.0	6.0	1.5	0.0	7.0	0.0
CSRs - Dedicated/TSR	0.0	2.0	2.0	3.0	10.0	8.0	6.0
Techs	3.0	5.0	6.0	3.0	8.0	12.0	5.0
Other	3.0	1.0	1.0	3.0	13.0	6.0	6.0
<b>Total Staff</b>	10.0	9.0	15.0	10.5	31.0	33.0	17.0

Connections Per FTE	A	B	C	D	E	F	CBH*
CSRs - Shared	1,217	1,934	373	1,709	0	1,929	0
CSRs - Dedicated/TSR	0	967	1,120	854	600	1,688	1,080
Total CSRs	1,217	645	280	570	600	900	1,080
Techs	1,622	387	373	854	750	1,125	1,296
Other	1,622	1,934	2,239	854	461	2,250	1,080
<b>All Head Count</b>	487	215	149	244	193	409	381



# ADMINISTRATIVE OVERHEADS AND MARKETING

Category	Key Assumptions	Source / Justification
<b>Marketing and Sales Expenses</b>	<ul style="list-style-type: none"> <li>•Budget included to support launch and support of comprehensive marketing strategy               <ul style="list-style-type: none"> <li>➤ Year1 - \$100,000</li> <li>➤ Year2 – Year5 - \$250,000</li> <li>➤ Year6 + - 1% of gross revenues</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>•Based on Uptown implementation of several FTTP marketing and advertising strategies</li> <li>•Includes all creative services, materials and ad buys</li> <li>•Commissions included as required</li> </ul>
<b>Billing Expenses</b>	<ul style="list-style-type: none"> <li>•Billing assumed to be credit card for all services - \$1.00 average cost per subscriber account per month</li> </ul>	<ul style="list-style-type: none"> <li>•Estimate only</li> </ul>

# CAPITAL BUDGETING ASSUMPTIONS

Category	Key Assumptions	Source / Justification
<b>Build Schedule</b>	<ul style="list-style-type: none"> <li>➤Year1 = 0% premises passed</li> <li>➤Year2 = 50% premises passed</li> <li>➤Year3 = 100% premises passed</li> <li>➤Year4 = 100% premises passed</li> <li>➤Year5 = 100% premises passed</li> </ul>	<ul style="list-style-type: none"> <li>•Assumes the use of contract construction crews</li> </ul>
<b>Outside Plant Construction Costs</b>	<ul style="list-style-type: none"> <li>•OSP cost per passing = \$850</li> <li>•Feeder network = \$1.65M</li> </ul>	<ul style="list-style-type: none"> <li>•Estimate based on Uptown sample designs (25% contingency)</li> <li>•Feeder estimate assumes use of existing backbone conduits</li> </ul>
<b>Network Upgrades</b>	<ul style="list-style-type: none"> <li>•Outside plant - \$75 in Year 10</li> <li>•Subscriber equipment - \$50 in Year 7</li> </ul>	<ul style="list-style-type: none"> <li>•Upgrades limited to electronics / optics</li> <li>•\$1.6M allocated for these upgrades in the triple play plan</li> </ul>
<b>Systems Costs</b>	<ul style="list-style-type: none"> <li>•Broadband Back Office = \$300,000</li> <li>•Network management = \$150,000</li> <li>•Fiber management = \$100,000</li> </ul>	<ul style="list-style-type: none"> <li>•Estimate based on actual FTTP client experience</li> </ul>
<b>Middleware and Conditional Access</b>	<ul style="list-style-type: none"> <li>•Initial Middleware = \$250,000</li> <li>•Middleware per Sub = \$50.00</li> <li>•Conditional Access initial = \$150,000</li> <li>•Conditional Access per Sub = \$8.50</li> </ul>	<ul style="list-style-type: none"> <li>•Only applies to Triple Play scenario</li> <li>•Estimate based on actual FTTP client experience</li> <li>•Market changing rapidly and costs will change depending on approach taken for deployment</li> </ul>
<b>Vehicle Capital</b>	<ul style="list-style-type: none"> <li>•Bucket Truck = \$75K (Four Maximum)</li> <li>•Service / install vehicle = \$45K</li> <li>•Install rigs = \$20K</li> </ul>	<ul style="list-style-type: none"> <li>•Maintenance = bucket, service = pickup/van</li> <li>•Install rigs purchased for each installer (mole/boring)</li> </ul>

# CAPITAL BUDGETING ASSUMPTIONS

Category	Key Assumptions	Source / Justification
<b>Fixed Equipment</b>	<ul style="list-style-type: none"> <li>•FTTP OLT Chassis and Base Kits = \$100K</li> <li>•OLT PON SFPs = \$50 per passing</li> <li>•Primary video head end = \$2.0M</li> <li>•Core Internet Routers = \$350,000</li> <li>•Feeder systems = \$250,000</li> <li>•Internet systems = \$125,000</li> <li>•Test equipment = \$150,000</li> <li>•Splice trailer = \$25,000</li> <li>•Fixed splicer = \$15,000</li> <li>•Hand held splicer = \$7,500 per installer</li> </ul>	<ul style="list-style-type: none"> <li>•Most estimates based on recent RFP processes for FTTP clients</li> </ul>
<b>Contract Installation</b>	<ul style="list-style-type: none"> <li>•Pre-install = \$350</li> <li>•Premises install = \$200</li> </ul>	<ul style="list-style-type: none"> <li>•Based on actual FTTP client experience</li> <li>•Year2 – 0% contract installs</li> <li>•Year3 – 0% contract installs</li> </ul>
<b>Subscriber Capital</b>	<ul style="list-style-type: none"> <li>•Indoor ONT(video) = \$250</li> <li>•Indoor ONT (non-video) = \$198</li> <li>•Indoor Power supply with battery = \$51</li> <li>•Fiber drop and materials = \$75</li> <li>•SD/HD Set Top Box = \$100</li> <li>•HD/DVR Set Top Box = \$225</li> </ul>	<ul style="list-style-type: none"> <li>•Based on recent quotes received for FTTP ONTs</li> </ul>
<b>Engineering and Implementation Support</b>	<ul style="list-style-type: none"> <li>•Engineering and Design Services = \$710,754</li> <li>•Implementation Support Services               <ul style="list-style-type: none"> <li>➢ Triple Play - \$360,000</li> <li>➢ Double Play - \$270,000</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>•Full range of engineering services</li> <li>•Highly specialized implementation tasks that should be managed by FTTP deployment experts</li> </ul>

- ▣ Long term financing
  - Two rounds of financing assumed over the first two years
  - Two years interest only
  - 12 years of level payments
  - 2% issuance, \$0 reserve requirement
  - Interest rate – 3% for Round One and 4% for Round Two
- ▣ Short term financing
  - Provides for cash needs not covered by long term financing
  - Balance accumulates over first five years including interest
  - Level payments begin in year six over ten year payment plan
- ▣ Start-up period included as Year 1 of the business case
  - No revenues assumed during first year of the plan
  - Technical trial underway at the end of the first year with 100 testers
- ▣ Other assumptions
  - Bad debt = 3% of gross revenues
  - Overhead loading of 147%
  - 1%/2%/3% interest on cash reserves in year1/year5/year10 respectively
  - Discount rate = 5% for present value calculations
  - 10 billable months in year2

## BASELINE FINANCIAL OUTCOMES

Outcome	Triple Play	Double Play	Internet Only
Equity Investment	\$0	\$0	\$0
Long Term Debt	\$32,958,336	\$29,865,813	\$29,865,813
Operating Losses (Working Capital )	\$6,913,675	\$7,366,697	\$8,397,360
<b>Total Funding</b>	<b>\$39,872,011</b>	<b>\$37,232,510</b>	<b>\$38,263,173</b>
Cash Flow with Debt Service - Year15	(\$3,939,875)	(\$4,980,463)	(\$6,707,650)
Cash Reserves - Year15	(\$10,824)	(\$7,028)	(\$12,157)
Total Outstanding Debt - Year15	\$34,395,590	\$45,505,289	\$72,347,153
Total Outstanding Equity - Year15	\$0	\$0	\$0
Net Cash - Year15	(\$34,406,414)	(\$45,512,317)	(\$72,359,310)
<b>Project Break Even</b>	<b>&gt;15 Years</b>	<b>&gt;15 Years</b>	<b>&gt;15 Years</b>

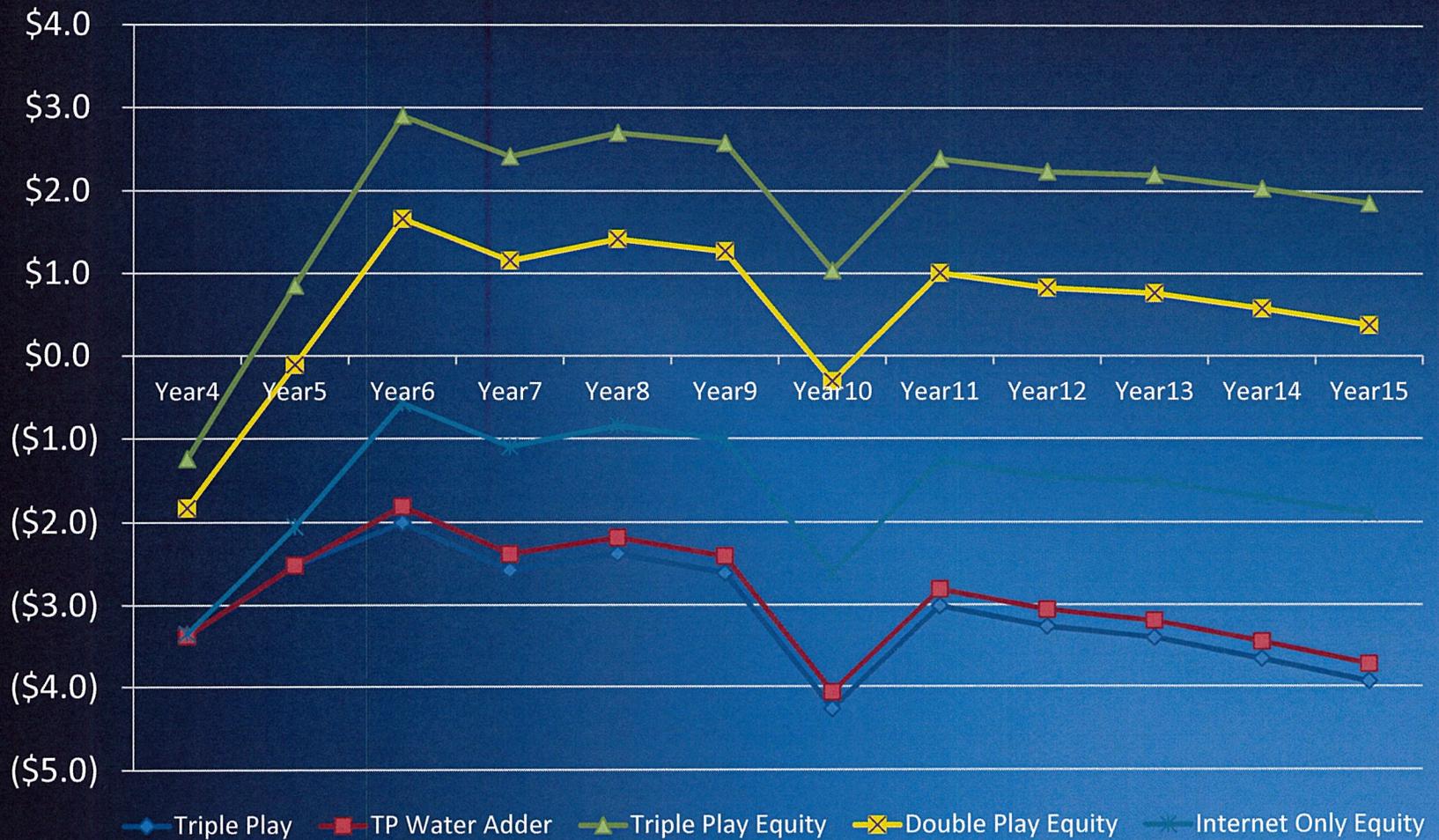
- ❑ “Net Cash” = Total Cash – Total Debt – Total Equity
- ❑ No scenario funded with long term bonds is sustainable for the City
- ❑ Operating cash flows are not sufficient to cover debt service
- ❑ Revenues are strong, but high City overheads pull cash flows down disproportionately

- ▣ Primary scenario options
  - Add a \$5.00 fee on all residential water bills for three years
  - Replace all project funding with 100% equity funding
- ▣ Water Bill Adder
  - Research showed support funding approach for FTTP
  - Collects \$180 per residential water customer over three year period
- ▣ Equity Investment Instead of Bond Funding
  - City would pay cash for all initial capital expenditures
  - Working capital (operating losses) would also be funded by equity
  - Ongoing equity infusions modeled as line of credit (0% interest)

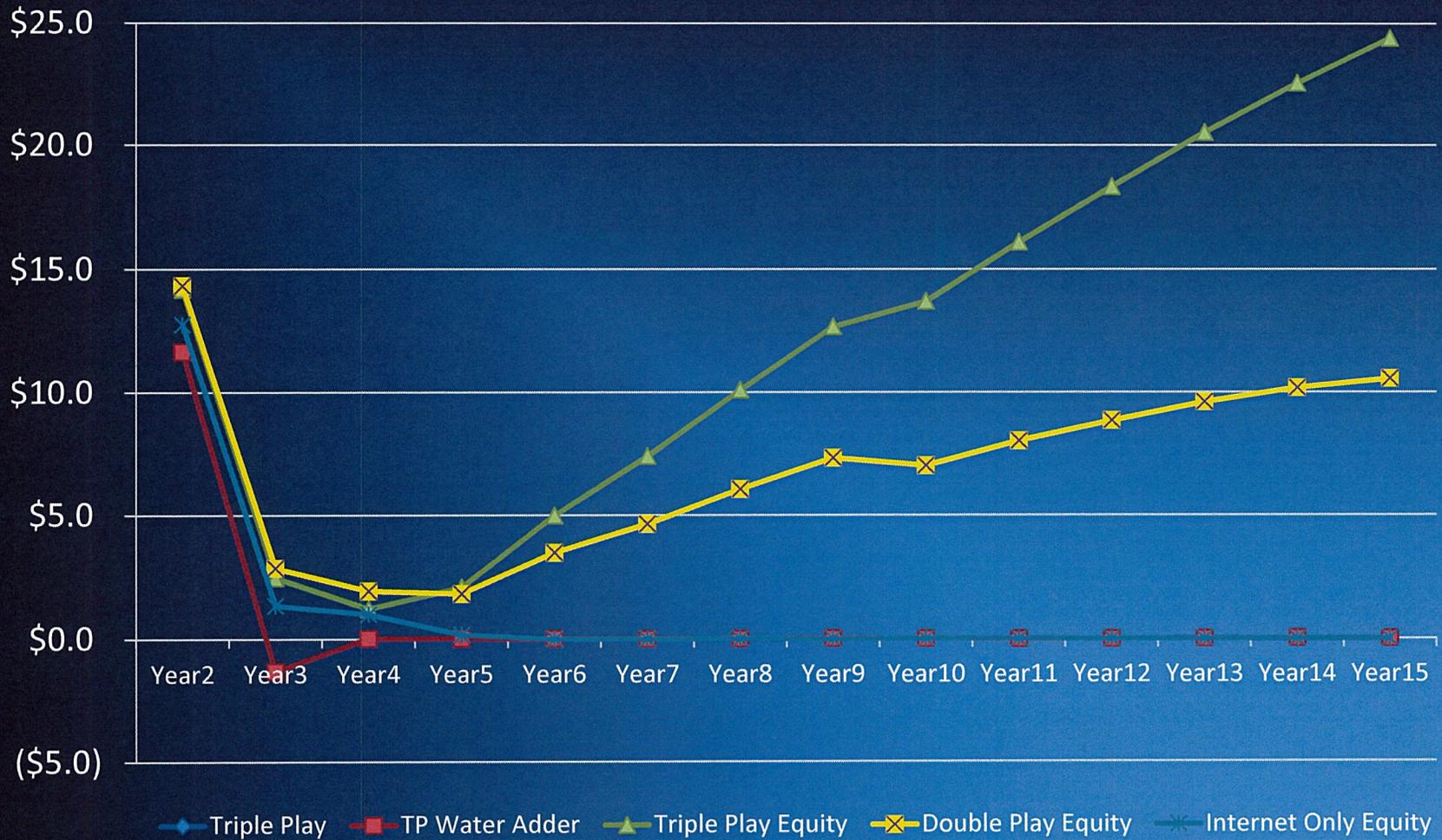
## TOP FOUR SENSITIVITY SCENARIOS

Outcome	Triple Play	Variation On Baseline Scenario			
		Triple Play Water Bill Adder	Triple Play Equity	Double Play Equity	Internet Only Equity
Initial Equity Investment	\$0	\$0	\$34,000,000	\$30,000,000	\$30,000,000
Long Term Debt	\$32,958,336	\$32,958,336	\$0	\$0	\$0
Operating Losses (Working Capital )	\$6,913,675	\$6,913,675	\$6,000,000	\$8,900,000	\$10,500,000
<b>Total Funding (First Five Years)</b>	<b>\$39,872,011</b>	<b>\$39,872,011</b>	<b>\$40,000,000</b>	<b>\$38,900,000</b>	<b>\$40,500,000</b>
Cash Flow w/ Debt Service - Year15	(\$3,939,875)	(\$3,726,102)	\$1,852,498	\$374,048	(\$1,894,879)
Cash Reserves - Year15	(\$10,824)	(\$9,938)	\$24,402,156	\$10,546,932	(\$10,424)
Total Outstanding Debt - Year15	\$34,395,590	\$32,263,075	\$0	\$0	\$13,820,000
Total Outstanding Equity - Year15	\$0	(\$2,700,000)	(\$40,000,000)	(\$38,900,000)	(\$40,500,000)
Net Cash - Year15	(\$34,406,414)	(\$34,973,012)	(\$15,597,844)	(\$28,353,068)	(\$54,330,424)
<b>Project Break Even</b>	<b>&gt;15 Years</b>	<b>&gt;15 Years</b>	<b>&gt;15 Years</b>	<b>&gt;15 Years</b>	<b>&gt;15 Years</b>

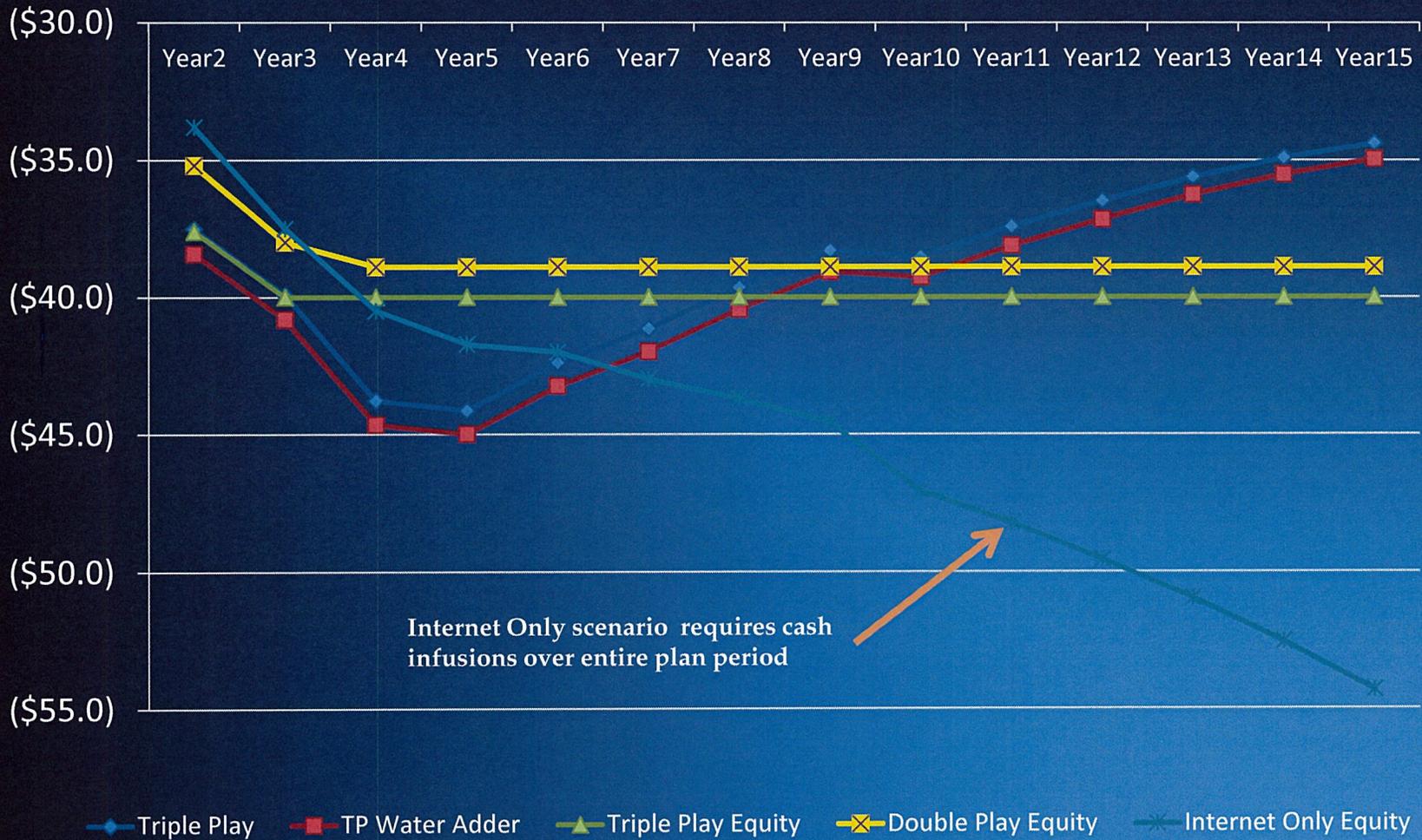
## CASH FLOW WITH DEBT SERVICE (\$M)



# CASH RESERVES (\$M)



# TOTAL OUTSTANDING DEBT AND EQUITY (\$M)



# NET CASH (\$M)



- ▣ Water bill adder
  - Water bill adder provides \$2.7M over three years
  - Proceeds used to fund working capital
  - Does not cure cash flow issues related to long term debt
- ▣ Equity investment in lieu of long term debt
  - Eliminating debt service improves triple play by \$18.8M over 15 years
  - Double play improves by \$17.2M
  - Triple play and double play both maintain positive cash flow
  - Internet Only is never self funding over 15 years
- ▣ Recommendation
  - Do not pursue any deployment using long term debt
  - Do not pursue an Internet Only strategy
  - Pursue Triple Play scenario using \$40.0M in equity funding

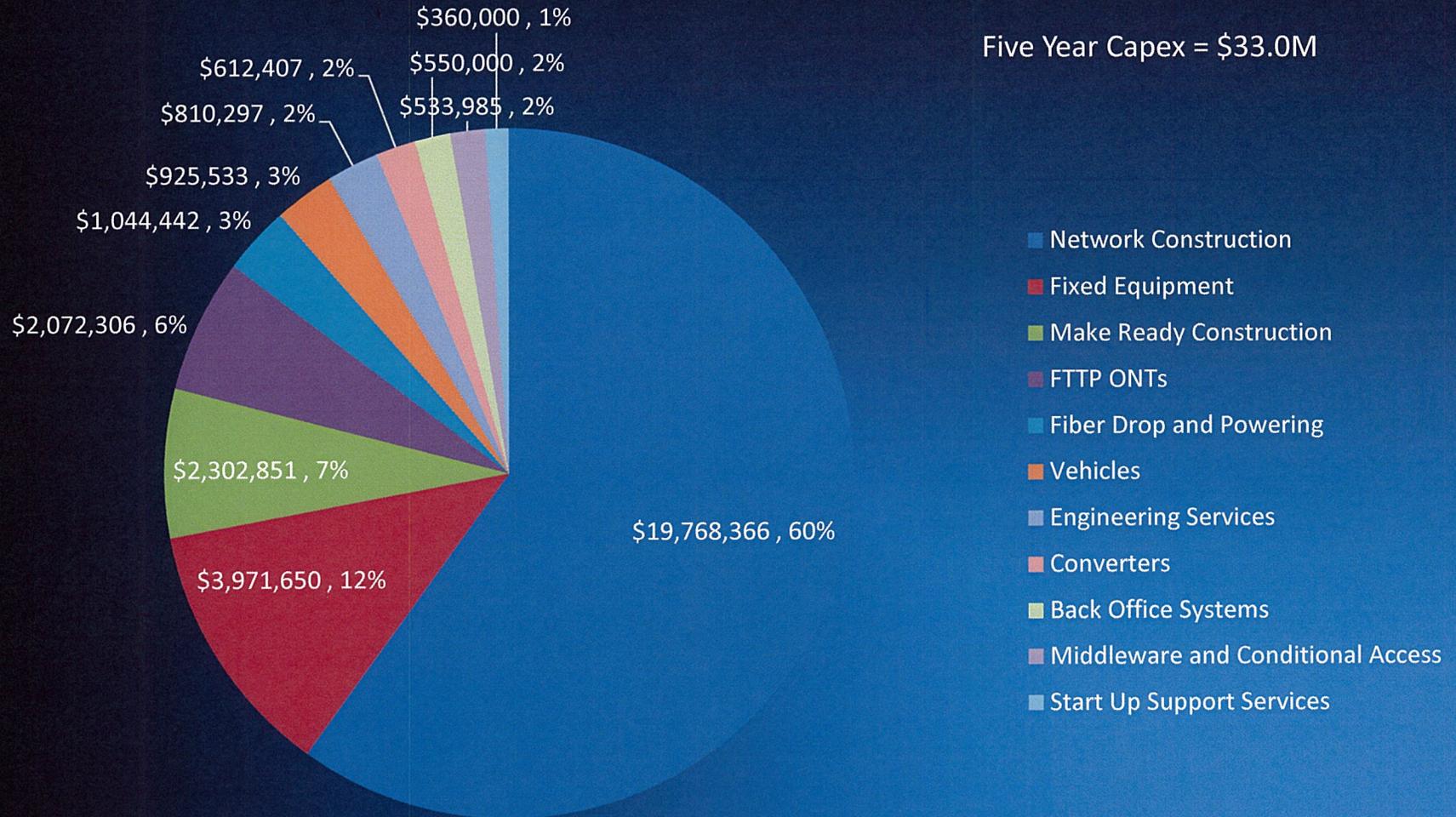
# Summary Financials

Triple Play Scenario – 100% Equity

# CAPITAL EXPENDITURES – FIRST FIVE YEARS

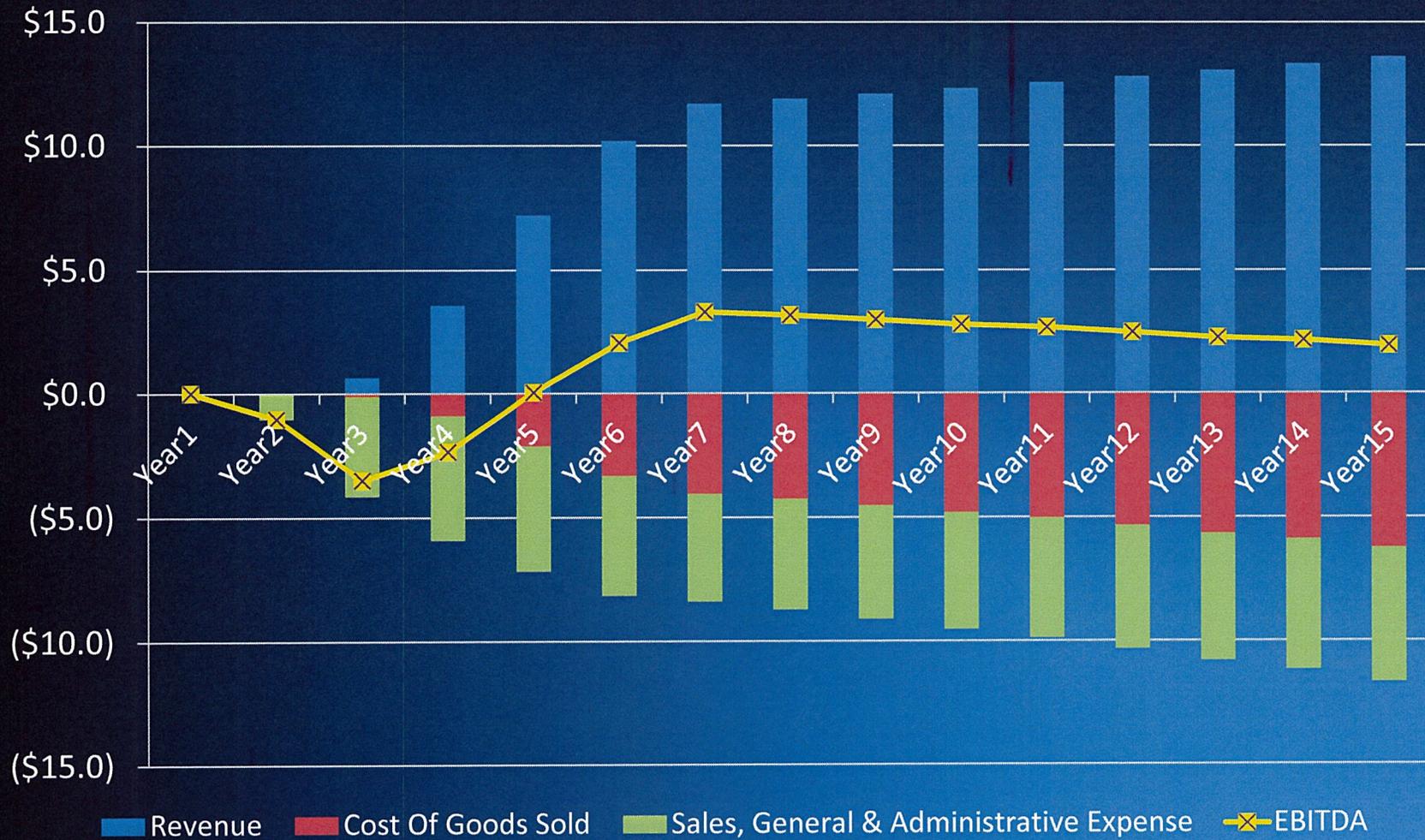
Triple Play Scenario – 100% Equity

Five Year Capex = \$33.0M



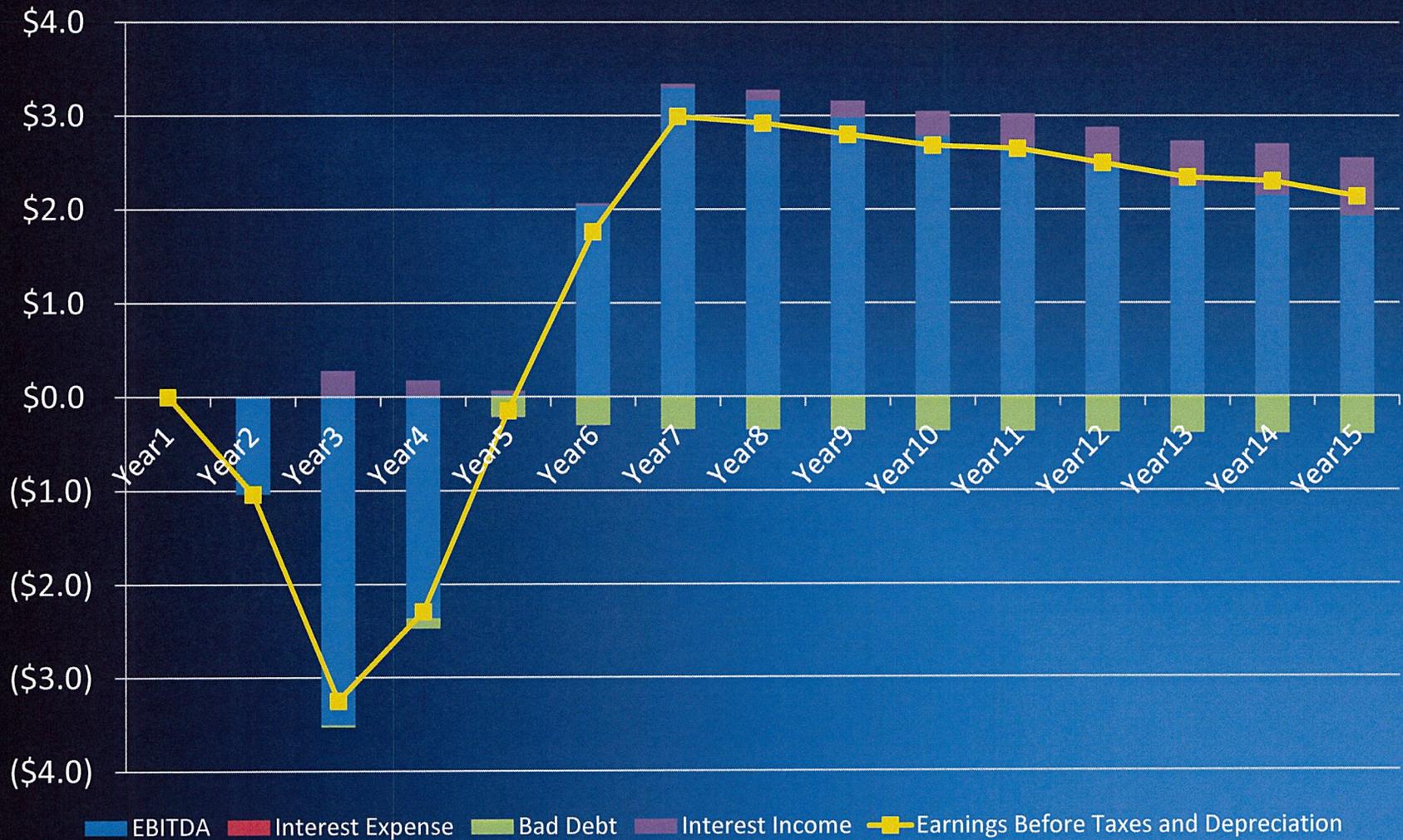
# OPERATING INCOME (\$M)

Triple Play Scenario – 100% Equity



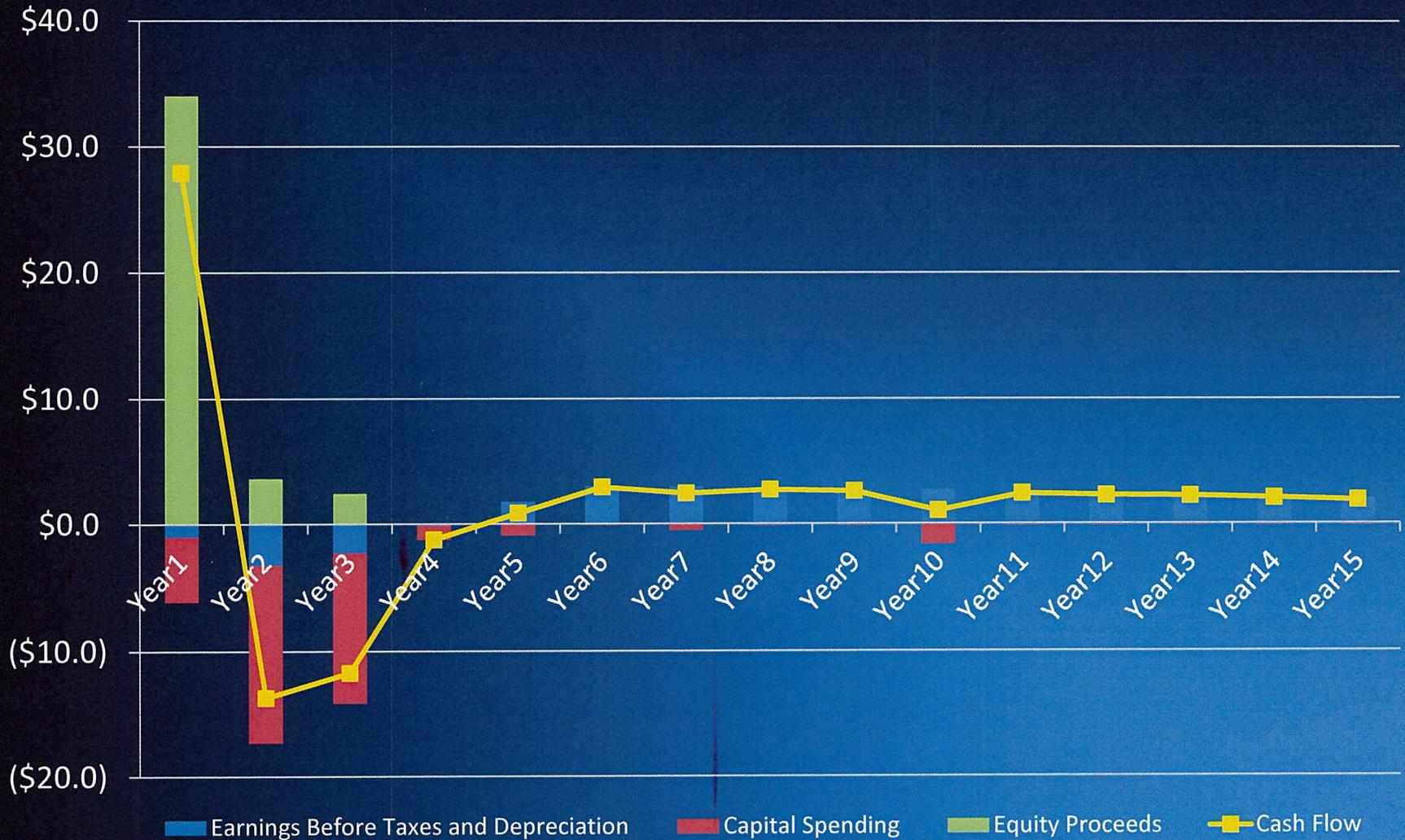
# EARNINGS BEFORE TAXES AND DEPRECIATION (\$M)

Triple Play Scenario – 100% Equity



## CASH FLOW (\$M)

Triple Play Scenario – 100% Equity



# NET CASH – TOTAL CASH LESS TOTAL EQUITY (\$M)

Triple Play Scenario – 100% Equity

