

# Micromanipulator

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Please accept my apologies for not being able to attend this meeting in person. I am visiting a customer, "On Semiconductor, Inc.", and trying to bring more high tech semiconductor test business to Carson City. That's what I do.

I'd like to express my appreciation to the board for taking the time to hear or read this letter and consider my input. It is a privilege to be heard. If it is being read out loud, to those in the audience, thank you for your indulgence as well.

During this meeting, I am sure you will hear several times about the need for emphasis on STEM (or STEAM) curriculums as well as the difficulty we manufacturers are having in finding well prepared employees, you will hear of the costs we incur to do training by ourselves, or even the difficulty in finding people who are prepared to successfully receive that training. These stories are all true and represent a key obstacle to our businesses.

Individuals more eloquent than I will speak to those issues. They will support the strategy and discuss the details. I myself would like to comment instead on two general aspects of what is happening here.

First, let me say that I recognize and applaud the effort put forth to train our children by the teachers and administration of the school district. I do not doubt their sincerity or dedication. I do believe they have a monumental task. Even with that dedication, I believe it is unrealistic to expect anyone to prepare all children for all possible futures.

Don't get me wrong, I am not advocating that we teach a student just what he or she wants to learn (although Nintendo may differ with me on that point), but I believe that to ignore the natural inclinations and talent of a student is tantamount to assigning them and the community to a loss of unique and valuable individual contributions.

While a well-rounded basic education is priceless, at some point, it becomes essential to introduce a certain degree of specialization into the curriculum to attain the level of understanding needed in modern manufacturing. I see the idea of "schools within schools" as a good approach to do this.

Secondly I think it is important to recognize the current activity within the business and especially the manufacturing community regarding education. Manufacturers are applying valuable resources to this effort with an amount of intensity that I have not seen before. I myself am a member of the Manufacturing Collaborative Advisory Committee, working with WNC, and am participating on the Board of the Dream it Do It program. The effort is substantial but so is the priority.

In business, you learn quickly that it is a special event when your customer is engaged and goes out of their way to work with you. When that happens, the results can be spectacular.

We in the business and manufacturing community are your customers. We are engaged and we are willing to apply resources to make you, our students and our businesses more successful through programs like the one being discussed tonight. So that we both may achieve the highest level of success possible, please listen to us.

Thank you again for your time and consideration.

Sincerely,

Mike Jackson

President

The Micromanipulator Co., Inc.





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SUSAN KEEMA, ASSISTANT SUPERINTENDENT, CCSD

JOHN KINKELLA, DEAN OF STUDENTS, WNC

# “Jump Start College” Pilot Semester Data

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**200 Student participants**

**5 School Districts (Carson, Churchill, Douglas, Lyon, and Storey)**

**10 High Schools (Carson, Churchill County, Dayton, Douglas, Fernley, Pioneer, Silver Stage, Smith Valley, Virginia City and Yerington)**

**9 Cohorts**

**9 Teacher Assistants**

**17 College Faculty**

**33 Individual college classes**

**Instructional Sites:**

**3 College Campuses - Carson, Douglas and Fallon**

**3 High Schools - Fernley, Silver Stage and Yerington**

# “Jump Start College” Pilot Semester Student Success Data

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## **Math Completion Rates:**

**WNC Average – 56.7%**

**Jump Start – 96.4%**

## **English Completion Rates:**

**WNC Average – 64.4%**

**Jump Start – 98.5%**

## **Total Course Completion Rates:**

**WNC Average - 73.4%**

**Jump Start – 98.2%**

# Individual High School Course Completion Data:

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**Carson  
High  
School**



Course Completion	WNC Average:	Carson Cohort:	Jump Start Overall:
English	64.4%	100%	98.5%
Math	56.7%	100%	96.4%
<b>Overall</b>	<b>73.4%</b>	<b>100%</b>	<b>98.2%</b>

# Jump Start Track A

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- Courses taught by Western Nevada College Faculty on the Western Nevada College Campus
- Teacher Assistant Provided by WNC for the Track A Cohort

## Course Offerings:

### Fall, 2015

English 101

Math 126

EPY 150

Communications 101

### Spring, 2016

English 102

Math 127

Philosophy 210

Psychology 101

Students who complete Track A can earn up to 24 college credits.



# Jump Start Track B

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- Courses taught by Carson High School Faculty on the Carson High School Campus
- Teacher Assistant Provided by WNC for the Track B Cohort
- College Latino Outreach Coordinator will act as Cohort Coach

## Course Offerings:

### Fall, 2015

English 095

Math 095

EPY 150 “College Success”

### Spring, 2016

English 098

Math 096

Communications 101

Students who complete Track B will leave CHS with the following advantages:

1. Students will start college in college-level English and math.
2. Students will complete 6 credits of college work prior to high school graduation.

# Jump Start Track C

## Construction Management & Automated and Industrial Systems

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- Courses taught at the WNC Carson Campus by WNC CTE Faculty
- Teacher Assistant provided by WNC for each Cohort
  - Provides Power School Connection to High School and Parents
- Admission based on high school recommendation and parent-student interview with high school and college staff
- **Course offerings lead to Certificates in either**  
**Construction Management or Automated and Industrial Systems**



**NEW ENTREPRENEUR  
NETWORK**

# Youth Entrepreneurship in Carson City



**BOYS & GIRLS CLUBS  
OF WESTERN NEVADA**



**2/19/15**

# Who?

- Hop & Mae Adams Foundation + Boys & Girls Clubs of Western Nevada
- Hop & Mae Adams Foundation Initiatives
  - Downtown Building Renovations
  - Adams Hub for Innovation
  - New Entrepreneur Network
  - ...more to come



**NEW ENTREPRENEUR  
NETWORK**

# Adams Hub for innovation





# Youth--Why Entrepreneurship?

- Inspired | Engaged | Dependable | Problem Solvers
- Complete High School | College | Career
  - US Dept of Labor 2002
- Culture



# What is New Entrepreneur Network?

- New E Curriculum
- New E Club
- New E Biz

Jeff Glass

Exec Director

“We are what we repeatedly do.

**Excellence** then, is not a single act, **but a habit.**”

*Aristotle*



# Participants & Advisory Committee

**Carson High School**



**BOYS & GIRLS CLUBS  
OF WESTERN NEVADA**



**Carson City  
Juvenile Probation  
Services**

**EAGLE VALLEY  
MIDDLE SCHOOL**



**PIONEER  
HIGH SCHOOL**



**CARSON  
MIDDLE SCHOOL**



***Western Nevada College***

Carson City • Douglas • Fallon • Fernley • Smith • Yerington

**NEW ENTREPRENEUR  
NETWORK**



# Skills & Attributes

- Practical Skills and Experience in Starting and Running a Business
- Entitlement
  - First and Second Interviews
- Hopelessness
- Key Attributes
  - Leadership and Motivation of Team
  - Communication Skills
  - Listening
  - Personal Relations
  - Negotiation
  - Ethics



# New E Curriculum

- In class guest speaker
  - Relevance of Traditional Coursework
- Entrepreneurship Classes
  - CHS credit, WNC credit (*TBD*)
  - Practical Skills
  - Experiential Learning for Starting & Running a Biz
  - Key Attributes



# New E Club

- ***Launched*** Carson High School, Spring 2015
  - After School (this semester)
  - CHS class credit
  - 70+ students joined (addtl 80+ interested)
- ***Launched*** Pioneer High School, Spring 2015
- Launching Spring 2015
  - Boys & Girls Club
  - CC Juvenile Probation
- Experience
  - 13 Weeks
  - Certification
- **Fall 2015**



# Practical Work Experience

- Walk the Walk
  - Retail Job Example
- Employment/Internships
  - Adams Hub
  - New E Biz Opps
  - CC Employers



# New E Biz

- Application of Skills in a PAID work experience
  - Management, strategy, creative, production, sales, public relations, marketing
- Gourmet Nuts
- Additional Businesses
- Self-sustaining support of New E Network
  - Profits donated back to Boys & Girls Clubs of Western Nevada, Other Youth Initiatives

# Contact

- Jeff Glass
  - [start@newEnetwork.com](mailto:start@newEnetwork.com)
  - 775.222.0411

**newEnetwork.com**

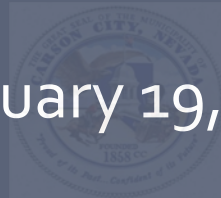


**NEW ENTREPRENEUR  
NETWORK**

# Projected Impact: The TESLA GIGAFACTORY

CARSON CITY SCHOOL DISTRICT/CARSON CITY BOARD OF SUPERVISORS  
JOINT MEETING

February 19, 2015



# Primary Information Sources

- Presentation at NV Energy January 15, 2015 “Impacts of Tesla Gigafactory in Storey County, NV”
  - Brian Bonnenfant
    - Center for Regional Studies, U of Nevada
  - Eugenia Larmore
    - Ekay Economic Consultants
- Others
  - US Bureau of Labor Statistics
  - Teslamotors.com
  - NV Governor’s Office of Economic Development
  - NV Department of Taxation
  - NV Department of Employment, Training, and Rehabilitation

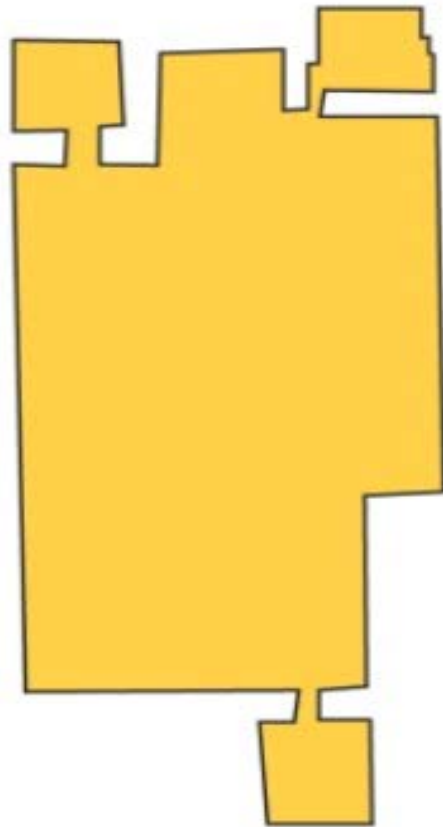


# TESLA GIGAFACTORY

50 GWh in annual battery production by 2020  
Enough for 500,000 Tesla cars  
Powered by renewable energy  
Net zero energy factory



# How Big Is The Gigafactory?



Boeing Factory (Largest Building on Campus)



Tesla Gigafactory



Dallas Cowboys Stadium



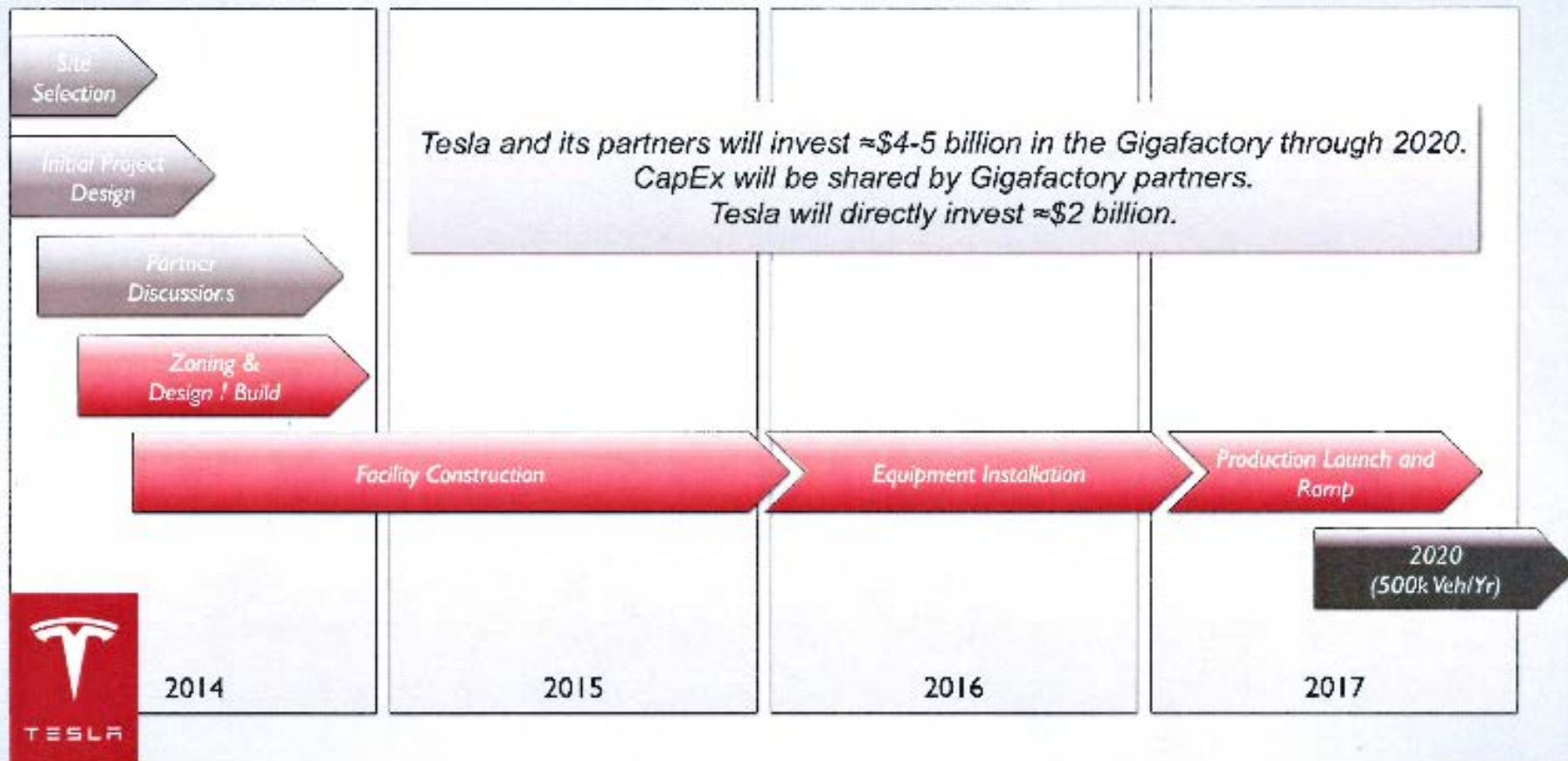
US Capitol



Football Field

Banana

## Gigafactory Projected Timeline



# 980 Acres of Lithium-Ion Battery Production

- Facility construction currently taking place
  - 5-6 million square feet
- Equipment installation beginning 2016
- Battery production begins 2017
- Fully ramped up by 2020



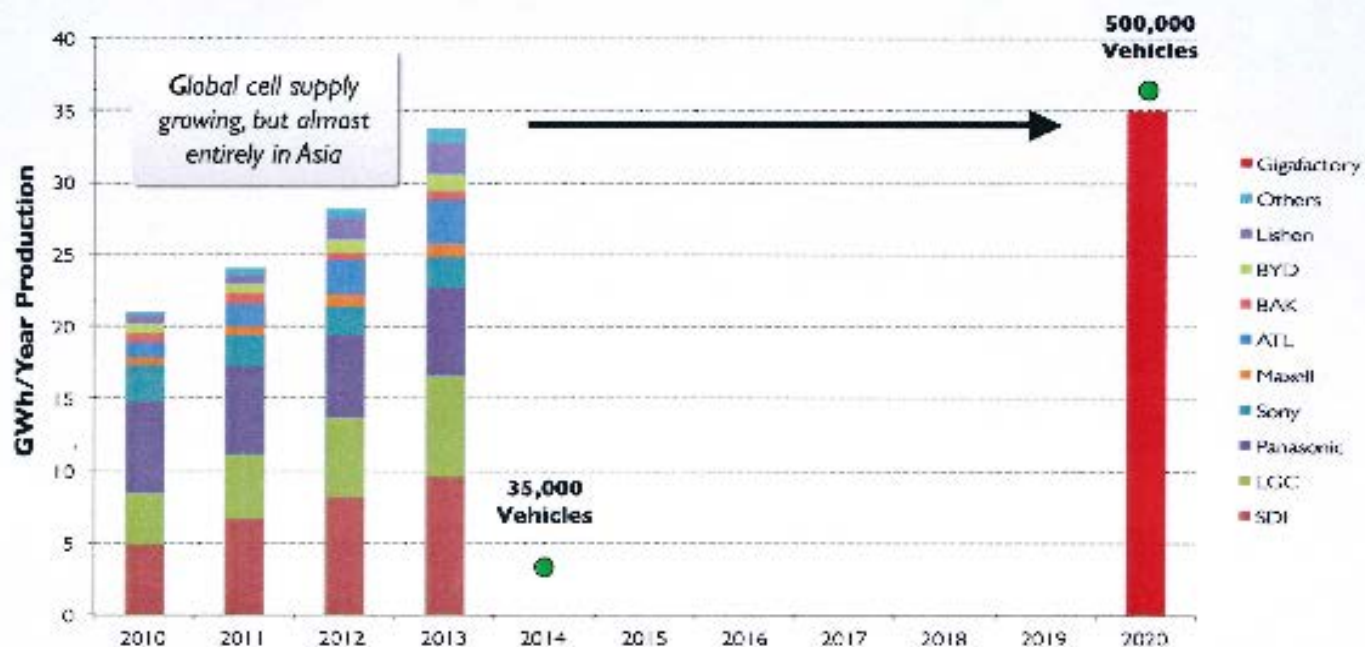
# Expected Production

- 500,000 battery packs each year
  - Cutting battery pack costs by 30%
  - Allows for 2017 offering of mass-market electric car starting at \$35,000
    - Produced in Fremont, CA





## Planned 2020 Gigafactory Production Exceeds 2013 Global Production



Battery pack cost/kWh reduced >30% by Gen III volume ramp in 2017



# Other Points of Interest

- Right to purchase additional 9,000 acres, of which 7,000 acres for expected wind farm
  - Net-zero energy
- USA Parkway punch through to Hwy 50 expected complete by December 2017
  - \$70,000,000 construction paid by state



# IMPACT: Construction

## TESLA GIGAFACTORY CONSTRUCTION 2015-2017

	Total	Annual Average
Direct Jobs	8,950	2,983
Indirect Jobs	4,665	1,555
<b>TOTAL JOBS</b>	<b>13,615</b>	<b>4,538</b>
Economic Impact	\$ 1,600,000,000	\$ 531,400,000

Source:GOED

## CURRENT CONSTRUCTION EMPLOYMENT

	2013	2Q 2014
Washoe	10,552	11,167
Lyon	474	553
Carson City	873	987
Douglas	943	1,021
Storey	159	187
<b>TOTAL</b>	<b>13,001</b>	<b>13,915</b>

## TESLA AS % OF TOTAL NW NEVADA

**32.61%**

Peak Construction Employment (2006)

29,176

Source: Dept. of Employment, Training, Rehabilitation



# IMPACT: Equipment Installation

## TESLA GIGAFACTORY EQUIPMENT INSTALLATION 2015-2028

	Total	Annual Average
Direct Jobs	12,015	858
Indirect Jobs	6,262	447
<b>TOTAL JOBS</b>	<b>18,277</b>	<b>1,305</b>
Economic Impact	\$ 2,100,000,000	\$ 152,900,000

Source:GOED



# IMPACT: Equipment Installation

TOTAL TAXABLE SALES (For Context)			
	2013	2014	% Change
Washoe	\$5,824,726,136	\$6,370,684,534	9.37%
Lyon	\$305,525,152	\$356,889,794	16.81%
Carson City	\$779,297,546	\$804,368,288	3.22%
Douglas	\$592,823,014	\$599,622,888	1.15%
Storey	\$77,728,883	\$108,434,066	39.50%
<b>TOTAL</b>	<b>\$7,580,100,731</b>	<b>\$8,239,999,570</b>	<b>8.71%</b>
<b>TESLA AS % OF TOTAL NW NEVADA</b>		<b>1.86%</b>	

Source: Dept. of Taxation

# IMPACT: Jobs

## TESLA GIGAFACTORY JOBS IMPACT

	National Multiplier	"Most Likely"
Direct Jobs	6,500	6,500
Indirect Jobs	22,685	16,965
<b>TOTAL JOBS</b>	<b>29,185</b>	<b>23,465</b>
Employment Multiplier	3.49	2.61

Source:GOED

## NEVADA INPUT-OUTPUT MODEL (IMPLAN)

	Job Multiplier	Direct Jobs
Other basic organic chemical manufacturing	4.46	617
Aluminum Product manufacturing from purchased aluminum	2.39	617
Carbon and graphite product manufacturing	N/A (AZ 2.4543)	617
Storage battery manufacturing	N/A (AZ 2.5862)	4,650



Job Impacts by Industry			
	Washoe	Lyon	Carson City
Storage battery manufacturing	N/A	N/A	N/A
Aluminum Product manufacturing from purchased aluminum	N/A	N/A	N/A
Other basic organic chemical manufacturing	N/A	N/A	N/A
Carbon and graphite product manufacturing	N/A	N/A	N/A
Wholesale trade businesses	1.06	0.50	0.51
Food services and drinking places	0.92	0.72	1.00
Real estate establishments	1.22	1.02	1.00
Services to buildings and dwellings	1.40	0.62	0.90
Employment services	1.16	na	0.74
Management of companies and enterprises	0.94	0.25	1.02
Transport by truck	1.38	1.34	0.33
Offices of professional health practitioners	1.07	0.63	1.41
Securities, commodity contracts, investments, financial services	na	0.04	na
Retail stores-General	1.13	na	1.54
Private hospitals	0.81	na	1.65
Maintenance and repair construction of nonresidential structure	1.18	0.93	0.87
Retail stores-Food and beverage	0.77	1.11	0.85
Architectural, engineering, and related services	1.22	1.37	0.56
Accounting, tax, bookkeeping	1.26	0.68	1.06
Retail stores - Motor vehicle	1.01	0.67	2.15
Management, scientific, and consulting services	0.45	0.13	0.29
Automotive Repair	4.65	0.90	1.67
Monetary authorities and depository credit intermediation	0.74	0.53	0.65
Retail nonstores-Direct and electronic sales	1.21	na	0.94
		Lower share of employment vs nation	
Source: Dept. of Employment, Training, Rehabilitation		Higher share of employment vs nation	

# IMPACT: Residential Construction

## NEW RESIDENTIAL CONSTRUCTION PER NEW JOB (WASHOE)

YEAR	New Single-Family Units	Total New Residential Units	New Jobs	New Single-Family Homes per New Job	New Residential Units per New Job
2010	396	408	(1,152)	(0.34)	(0.35)
2011	495	502	(708)	(0.70)	(0.71)
2012	633	641	1,143	0.55	0.56
2013	934	937	2,499	0.37	0.37
2014	1,211	1,279	5,597	0.22	0.23
1991-2014 Average				0.74	0.82
1991-1998 Average				0.48	0.51

Source: Dept. of Employment, Training, Rehabilitation



# IMPACT: Job/Residence Projections

## EMPLOYMENT PROJECTIONS-ALL EMPLOYMENT FOR RENO/SPARKS MSA

Year	TESLA Direct	TESLA Indirect	EDAWN Primary	EDAWN Secondary	TOTALS	Adjustment for Attrition
2015	700	1,148	4,000	5,040	10,888	10,538
2016	1,000	1,640	3,500	4,410	10,550	10,201
2017	3,000	4,920	3,000	3,780	14,700	14,352
2018	1,800	2,952	2,500	3,150	10,402	10,055
2019	0	0	2,000	2,520	4,520	4,174
TOTALS	6,500	10,660	15,000	18,900	51,060	49,320

Source: EDAWN



# IMPACT: Job/Residence Projections

## NEW HOUSING UNIT DEMAND

Year	Low Estimate	High Estimate
2015	5,269	8,430
2016	5,101	8,161
2017	7,176	11,482
2018	5,028	8,044
2019	2,087	3,339
Five-Year Total	24,661	39,456

Source: Center for Regional Studies

## Approved Unbuilt Residential Units In Washoe County

29,849

## Approved Unbuilt Single-Family Units Hwy 50 Corridor

15,668



# IMPACT: Business SQFT Demand

NEW COMMERCIAL SQFT DEMAND		
Year	Low Estimate	High Estimate
2015	1,972,795	2,679,018
2016	1,909,706	2,593,344
2017	2,686,805	3,648,630
2018	1,882,374	2,556,227
2019	781,405	1,061,133
<b>Five-Year Total</b>	<b>9,233,085</b>	<b>12,538,352</b>

Source: Center for Regional Studies

NEW OFFICE SQFT DEMAND		
Year	Low Estimate	High Estimate
2015	509,407	1,083,933
2016	493,117	1,049,269
2017	693,776	1,476,238
2018	486,059	1,034,251
2019	201,771	429,335
<b>Five-Year Total</b>	<b>2,384,130</b>	<b>5,073,026</b>

Source: Center for Regional Studies

NEW INDUSTRIAL SQFT DEMAND		
Year	Low Estimate	High Estimate
2015	4,204,724	5,456,975
2016	4,070,259	5,282,464
2017	5,726,532	7,432,009
2018	4,012,004	5,206,860
2019	1,665,451	2,161,455
<b>Five-Year Total</b>	<b>19,678,970</b>	<b>25,539,763</b>

Source: Center for Regional Studies





# IMPACT: Local Taxes

- Storey County likely receiving most of sales tax revenue
- When property tax abatement ends, all will go to Storey County



# IMPACT: Population

- Of all Storey County Employees (2011)
  - 59% live in Washoe County
  - 15% live in Lyon County
  - 7 % live in Storey County
  - 4% live in Carson City
  - 4.6% live outside of the State
- Unlikely new residents will live in Storey County



# IMPACT: Population

County	Direct Impact		Indirect Impact	
	Estimated New Residents	Estimated New Households	Estimated New Residents	Estimated New Households
Washoe	4,214	1,566	21,023	7,815
Lyon	1,039	386	5,184	1,927
Storey	-	-	-	-
Carson City	294	109	1,464	544
Mineral	206	77	1,027	382
Douglas	196	73	976	363
Other Nevada	374	139	1,868	695
<b>Totals</b>	<b>6,323</b>	<b>2,350</b>	<b>31,542</b>	<b>11,726</b>



# IMPACT: Job Growth

- By 2019, 25,000 more jobs than at employment peak in 2007
- Unemployment Rates (Dec 2014)
  - Natural Unemployment Rate— 4%
  - U.S. Unemployment Rate – 5.6%
  - Nevada Unemployment Rate- 6.8%
  - Reno/Sparks MSA Unemployment Rate – 6.2%
- Lowest Unemployment Rate for 6 county NW Nevada Region – 2.7% (October 1999)

# IMPACT: Job Growth

- 6 County NW Nevada region (Dec 2014)
  - 19,900 unemployed
    - 8,000 unemployable
    - 11,900 remaining
- Reno/Sparks MSA (Dec 2014)
  - 13,800 unemployed
- 45,000 + new jobs to fill



# IMPACT: Residential Growth and Demographic Change

## NORTHERN NEVADA 2000-2005

- Added 63,000 residents
- Ages 65 and older grew 69%
- Ages under 65 grew by 23%
- 11% of households 65 and older with no children at home (up from 7.7% in 2000)
- Increased demand for health care

## NORTHERN NEVADA 2015-2020

- Projected addition of 38,000 due in part to Tesla, likely more.
- Primarily younger to middle-aged adults
- More school-aged children
- Increased demand for parks and recreation, other public services and **SKILLED LABOR**



# IMPACT: Public Services

- From 2007 to 2015 there have been significant decreases in public employees
  - Washoe County
    - 3,199 FTE to 2,546 FTE
    - 7.82 to 5.90 FTE per 1,000 residents
  - Reno
    - 1,883 FTE to 1,205 FTE
    - 8.89 to 5.20 FTE per 1,000 residents



# IMPACT: Public Services

## ■ NEEDS

- Infrastructure/Capital Improvements - roads, water, sewer, expanded administrative offices, parks, schools, etc.
- Residential Services – police, fire, judicial, parks, education, recreation, road maintenance, etc.
- Commercial Services – business licenses, permitting, police, fire, judicial, road maintenance

## ■ INCREASED EXPENDITURE DEMANDS





# IMPACT: Schools

- Increase in student populations
  - Washoe County – 3570 students
  - Carson City – not given
    - Based on multiplier for Washoe  $\approx 249$  Students
- Tesla will contribute \$37.5 million to Education Gift Fund starting in 2018



# IMPACT: Wages

- Average wage \$20.67
- Direct Tesla employees - \$27.35
- Indirect employees - \$25.16
  - Higher sales tax revenues expected
  - Competition for Tesla-related jobs
  - Competition for limited employee pool
    - Wages will increase
  - Increased demand for goods, services, housing
    - Assessed values should increase

# IMPACT: So much...

- Questions?

- AJ Feuling

- Carson City SD Director of Fiscal Services
- [afeuling@carson.k12.nv.us](mailto:afeuling@carson.k12.nv.us)

