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Wednesday, October 13, 2010
via hand delivery on 10-14-10

Mr. David Mieger, Project Manager
L.A. County Metropolitan Transit Authority
Westside Subway Extension
One Gateway Plaza, 99-22-02
Los Angeles, C A 90012

RE: Citizens Coalition - Los Angeles's and Hollywoodians Encouraging
Logical Planning's Objections to the LAMTA's September 2010
Draft EIT for the Westside Subway Extension.

Dear Mr. Mieger:

This office represents Citizens Coalition - Los Angeles [CC-LA] and
Hollywoodians Encouraging Logical Planning [H.E.L.P.] and other Los Angeles
County residents who object to the September 2010 Draft EIR for the Westside
Subway Extension.

The draft EIR fails to consider the Alternative Transportation of Virtual
Presence [VP], and in addition, the draft EIR has other material defects as set
forth in **CC-LA's and H.E.L.P.'s Objections to the L.A. County MTA's
September 2010 Draft EIR for the Westside Subway Extension** which is
submitted herewith.

In addition we are submitting supporting materials which are itemized on
the List of Submissions with Objections to Draft EIR.

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Thank you in advance for your attention to this matter.

Very truly yours,

A handwritten signature in blue ink that reads "Richard MacNaughton". The signature is stylized with a large, sweeping flourish that extends upwards and to the right.

Richard MacNaughton, Esq.
RMN:ra
enc.

List of Submissions with Objections to Draft EIR

Item #	Title
1.	CC-LA's and H.E.L.P.'s Objections to the L.A. County MTA's September 2010 Draft EIR for the Westside Subway Extension
2.	City of Los Angeles Telecommuting Project, Final Report, March 1993, Jack M. Nilles
3.	2009 Status of Telework in the Federal Government, Report to Congress, United States Office of Personnel Management, August 2009
4.	BEST Workplaces for Commuters, Telework Programs, Implementing Commuter Benefits as One of the Nation's Best Workplaces for Commuters, United States Environmental Protection Agency, January 2005
5.	CISCO University Gains Significant Savings By Reducing Travel, © 2010 Cisco Systems, Inc.
6.	CISCO Telsco Uses Collaboration Tools To Support Rapid International Growth, © 2009 Cisco IBSG
7.	CISCO Unified Communications Solutions Partner Gains a Competitive Advantage, © 2009 Cisco Systems, Inc.
8.	CISCO Healthcare Company Improves Communications For Dispersed Employees, © 2008 Cisco Systems, Inc.
9.	Westside Subway Study is Defective, THE MANHATTANIZATION OF LA, by Richard Lee Abrams, © 9-10-10 <u>CityWatch</u> Los Angeles, CA

Item #	Title
10.	Virtual Presence is Upon Us, IS LA OBSOLETE, by Richard Lee Abrams, © 9-03-10 CityWatch Los Angeles, CA
11.	MASS TRANSIT: The Great Train Robbery, by Joel Kotkin , © August 10, 2010 NewGeography.com

Item 1.

CC-LA's and H.E.L.P.'s Objections to the L.A. County
MTA's September 2010 Draft EIR for the Westside
Subway Extension

**CC-LA's and H.E.L.P.'s Objections to the L.A. County MTA's
September 2010 Draft EIR for the Westside Subway Extension**

The Westside Extension's DEIR Is Materially Defective

I.

DEIR Excludes a Known Alternative Form of Transportation

A DEIR has the duty to set forth and examine all reasonable alternatives. This DEIR excludes a known, reasonable alternative which has official documentation going back to 1993. The Alternative has different names just as some people call The Subway "The Underground" or "The Tube." For some, this alternative mode of transportation is called Tele-commuting, for others it is Telepresence (Cisco), the federal government uses Telework, but for these comments, the term is **Virtual Presence**.

Virtual Presence (VP) is a form of Transportation which has been officially recognized both by the federal government (see www.telework.gov) and Los Angeles County. VP is the marriage of Telecommuting and Social Networking made possible by the technological advances in the last two decades. The improved technology allows for two-way visual and oral communication on life size monitors. With the 3-D monitors along with the ability for multi-way televised communication between people miles apart, Virtual Presence is a form of transportation which the EIR may not legally ignore.

The 1993 City of Los Angeles Telecommuting Project (copy submitted herewith) identified and discussed in detail the transportation alternative of Telecommuting. Mayor Bradley commissioned the study in 1989 and the project was run during 1992 and the Study was published in 1993. Thus, the drafters of the DEIR had to be aware of the efficacy of this form of transportation, yet the DEIR fails to consider it. Furthermore, the federal government has published since 2002 (Annual Status of Telework in the Federal Government).

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Because Virtual Presence is not confined to the workplace, but is becoming part of social networking, VP will be used for a significantly larger share of transportation in the upcoming years. The vastly enhanced technology makes extended family interactions over a few miles or over thousands of miles far more feasible than a few years ago.

While a lot of VP will be used for national and international socialization, it works just as well within an urban area. The speed of VP is one feature that is making it the preferred mode of transportation.

Another aspect of VP is that it promises to reduce the resistance which many managers have to telecommuting, i.e., the fear that their employees are beyond their grasp when engaged in telework. With pre-VP telework, the employee was at home on his computer and pretty much unavailable to the boss except via phone or e-mail. With VP, the boss can now go to the employee's "office" by opening the VP channel. Opening the VP channel is as easy or easier than walking down the hallway to speak to a manager. As a result, the *2009 Status of Telework Report* (p 2) found management resistance as a major obstacle to increasing the amount of Telework.

With VP the manager is not as out of contact. Many employees may find more contact with the boss is not a good thing. Right now all the studies show that productivity goes up with more telework. To what extent that is due to being out from beneath the boss' thumb is not known. Nonetheless, VP does allow the manager to confer one employee or simultaneously with several employees in different departments in different locations for 5 or 10 minutes and then everyone goes back to their projects.

The efficacy of VP as a form of transportation will only increase with technological improvements. VP is an Alternative to the Westside Subway as a by-product of its nature. No other form of transportation allow people to be

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in Westwood as quickly they are in Singapore or to be in both Singapore and Westwood simultaneously.

Because the Telecommuting was a viable alternative to the Westside Subway in 1993, **Virtual Presence** in 2010 is the most viable Alternative Transportation to the subway. As the 1993 Study noted, traffic congestion and need for office space was reduced by 30% – based on 1992 technology.

As will be seen, Virtual Presence satisfies all the goals of the Westside Subway with no adverse environmental impact and with no drain on tax dollars and without the eminent domaining of a single piece of property. VP requires no underground easements beneath private property, nor does it require higher housing density to be cost-effective

1. In Chapter 1, the DEIR Set Forth the Purpose and Need for the Westside Subway.

In Chapter 1, the DEIR lists the Subway's purpose and its need.

1.1 Project Purpose and Need

Recent studies of the Study Area to be served by the proposed project revealed the need for transportation improvements including mobility options to meet the increasing travel demand. The purpose of the Westside Subway Extension Project is to improve transit travel time, provide more reliable transit service to the 286,246 transit riders who access the Study Area today. More specifically, the project purpose is to:

Improve Study Area mobility and travel reliability'

Improve transit services within the Study Area;

Improve access to major activity and employment centers in the Study Area;

562-1

Your comment on the first page of your letter about the Draft EIS/EIR failure to not consider Virtual Presence as an alternative has been noted. CEQA indicates in Section 15126.6(f) that the "range of alternatives required in an EIR is governed by a 'rule of reason' that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only the ones that the lead agency determines could feasibly attain most of the basic objectives of the project." An EIR does not need to consider every conceivable alternative to a project.

Section 15126.6(f)(3) further states that "An EIR need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative". While your letter outlines many of the benefits of Virtual Presence, Metro does not have a means, nor is it within Metro's purview, to measure the "effect" or benefit that a system like Virtual Presence would have on addressing mobility needs, i.e., its effect "cannot be reasonably ascertained." For example without a means of measuring its effectiveness (how many people are actually commuting this way on an on-going, regular basis), Metro would also have no means of measuring air quality benefits or identifying whether it was in compliance with air quality regulations.

Further, Metro's jurisdiction does not extend into the workplace, which is where the authority to "commute" via Virtual Presence would need to come from. Without the jurisdictional ability for Metro to "mandate" that commuters use Virtual Presence, Metro would have no measurable way to ensure its implementation (i.e., its implementation is "remote and speculative").

Your comments on pages 1-3 of your letter about the description of Virtual Presence have also been noted.

Your comment 1 on pages 3-5 states that it appears that the purpose and need was developed specifically for a subway technology and that the Virtual Presence technology would have features that could not be met by a subway. The Purpose and Need for the project was developed after years of study on this project and was not developed with a subway technology as the only solution. The Alternatives Analysis (AA) evaluated several different technologies that were identified as meeting the Purpose and Need, including Heavy Rail Transit (HRT), Light Rail Transit (LRT), Bus Rapid Transit (BRT), and monorail. It was determined through the AA study process that the carrying capacity of a heavy rail transit system was the most appropriate for meeting the travel demand in the corridor, and hence best meeting the Purpose and Need by addressing each of these issues when compared with the other alternatives.

562-1

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Improve opportunities for transit supportive land use policies and conditions;

Improve transportation equity;

Provide a fast, reliable, and environmentally-sound transit alternative'

Meet Regional Transit Objectives through SCAG's Performance Indicators of mobility, accessibility, reliability, and safety;

Although it appears that these goals were tailored made for a Subway, the Subway is not the only form of transportation that Angelenos are using in 2010. At a very rapid pace, Angelenos and people worldwide are changing to Virtual Presence as a vital mode of transportation. (*See, CISCO large screens for international interviews on The Rachel Maddow Show.*)

Virtual Presence is as effective to shop in Tokyo as it is to shop in Hollywood – the whole world Fed Ex's packages. Virtual Presence is as effective to commute to a meeting in West Hollywood as it is to commute to a meeting in Moscow. VP allows four members of a rock band to synchronize their playing no matter where they are located: Long Beach, Woodland Hills, Covina, and West Hollywood are all one location in Virtual Presence. (*See Time-Warner TV advertisement*)

Virtual Presence has a feature which no subway can match. It travels at 186,000 miles per hour. Why would a businessman waste a hour traveling from Santa Monica to Glendale to meet with his lawyers, when he can be there in a blink of any eye?

Why would an entrepreneur from Newport Beach drive to L.A. for a conference when most the other attendees will be there via VP?

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Who wants to pay their lawyer \$500/hr to drive downtown for a five minute hearing, when the lawyer can attend via VP and reduce his bill by \$450?

Why would anyone want to walk or take a bus to a subway station, walk down into the earthquake prone Underground and then ride a noisy, dirty, dangerous subway only to have to emerge from the depths and walk another 5 or 6 blocks to reach his/her destination when he/she can be there in less than one second?

562-2

2. Virtual Presence Accomplishes All the Goals of the Westside Subway.

As will be seen, the 1993 Telecommuting Study made clear that Virtual Presence satisfies the purpose and need for the Subway.

Improve Study Area mobility and travel reliability:

Not only does Virtual Presence improve mobility within the travel Study area, it improves it worldwide. In order for a subway to cover the very limited area of Los Angeles County will require a \$2 Trillion Dollar investment – and you're still stuck in L.A. VP takes you worldwide.

Improve transit services within the Study Area;

Virtual Presence will also improve the surface physical transportation by the dramatic reduction in the use of physical transportation. The transit times on buses and cars from downtown to the sea will be significantly reduced due to the 30% (or more) demand for physical transportation. The DEIR admits that it will decrease traffic congestion by no more than 1%. 1% is not an improvement. The transportation modality that reduces congestion by 30% (or more) is clearly superior to the system that may reduce traffic congestion by 1%.

562-2

Your comments about Virtual Presence accomplishing all the goals of the Westside Subway have been noted.

Please see the response to your comment 1. It is not within Metro's jurisdiction to mandate from employers that their employees commute via Virtual Presence. As such, Metro would have no means for measuring its effectiveness. For example, Metro would have no means for ensuring its implementation which could lead to Metro not complying with air quality regulations. Therefore, while Metro appreciates the considerable time and effort put forth to describe how Virtual Presence meets the goals of the Westside Project, Metro does not have the ability to mandate its implementation and would not be able to measure its effectiveness in meeting the Project's goals and objectives.

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Improve access to major activity and employment centers in the Study Area;

Virtual Presence which moves at 186,000 mph provides much faster access to businesses and homes within the Study area than any subway, while at the same time it also provides instant access to the entire globe.

Improve opportunities for transit supportive land use policies and conditions;

These are code words for **mega-density**. Population density is causing people to depart from Los Angeles. For two decades, excessive density has Los Angeles County to experience an exodus of the middle class to less dense countries, e.g. Riverside, and to less dense states. Cramming more and more people into less and less space is a hideous condition to be avoided. As the words imply, these "*transit support land use policies*" are caused by the Subways. In brief, this goal means billions of dollars for land developers in an area filled with some of Los Angeles most significant R-1 neighborhoods.

To the extent the CRA/LA is involved it means additional erosion of the City's tax base, making it impossible for the city to provide basic services to anyone.

The EIR needs to take account of the fact that population density is likely to become a huge liability with the advent of VP. The dense housing which the DEIR contemplates cannot compel people to live in high rise tenements. If this were Siberia and not Southern California, the population might like the idea of huge dense population centers all under a huge dome to protect them from the terrible weather. People, however, do not come to Los Angeles to lives as if they were in the frozen tundra.

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Improve transportation equity;

This term has no meaning. Perhaps it refers to de Tocqueville's idea that many people would prefer the tyrannical equality of slaves, where everyone is forced into the same reduced circumstances, while a special few enjoy the good life.

The great equalizer has been the Internet, web-based data bases, Social Networking. Virtual Presence will become as ubiquitous as color TV.

*Provide a fast, reliable, and environmentally-sound
transit alternative;*

No subway will beat 186,000 miles per second.

The fixed-rail subway will be fueled by coal burning plants in the Arizona desert making the Subway environmentally harmful. The horrendous increase in population density which the subway needs in order to be financially viable will make more demands on our power grid. The Subway compounds adverse environment impacts. Higher population density results in high social pathology.

Subways compel people to expose themselves to people with colds and other viruses. Forcing people into areas which significantly increase the spread of illnesses is not environmentally sound.

*Meet Regional Transit Objectives through SCAG's
Performance Indicators of mobility, accessibility,
reliability, and safety;*

The goal of the Subway should not be to satisfy the objectives of special interest groups who are financially tied to international corporations that push fixed-rail, which is a 19th Century solution to 21st Century problem.

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Although SCAG's Performance Indicators appeared to have been designed for the benefit of the developers, Virtual Presences satisfies each indicator, except for the unstated Indicator, i.e., to make trillions of the dollars for fixed-rail transportation conglomerates and their associates in the high-rise housing industry.

Virtual Presence satisfies the indicators by providing a form a transportation that makes all their subway technology obsolete.

**3. Chapter 2 of the DEIR Explained the Criteria
to Identify Alternatives To the Subway**

The DEIR had criteria to decide which forms of transportation to include as Alternatives.

Seven goals were established in the AA phase of planning and were used to both screen out alternatives and identify those alternatives to be carried forward into this Draft EIS/EIR.

Goal A: Mobility Improvement—The primary purpose of the Project is to improve public transit service and mobility in the Westside Extension Transit Corridor. To evaluate the goal of mobility improvement, the evaluation examines how well each alternative improves the ability of residents and employees to reach desired destinations through the provision of high quality, convenient, and reliable east/west transit service.

Goal B: Transit-Supportive Land Use Policies and Conditions—A major aspect of this goal is to locate transit alignments and stations in areas with existing land uses conducive to transit use or in those areas that have the greatest potential to develop transit-supportive land uses.

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Goal C: Cost-Effectiveness—This goal ensures that both the capital and operating costs of the Project are commensurate with its benefits.

Goal D: Project Feasibility—The fourth goal is that the Project be financially feasible. Specifically, this goal helps ensure that funds for the construction and operation will be readily available and will not place undue burdens on the sources of those funds. The goal also includes minimizing risks associated with project construction.

Goal E: Equity—This goal evaluates project solutions based on how fairly the costs and benefits are distributed across different population groups with particular emphasis on serving transit-dependent communities.

Goal F: Environmental Considerations—The sixth goal is to develop solutions that minimize impacts to environmental resources and communities within the Study Area.

Goal G: Public Acceptance—This goal aims to develop solutions that are supported by the public with special emphasis on residents and businesses within the Study Area.

4. Virtual Presence Satisfied All the Criteria

Although Virtual Presences satisfied all the criteria, the DEIR failed to include Virtual Presence as an Alternative. The Alternatives were No Build, Build Some More, Build Yet More, Build More and More, Build ad infinitum.

***Goal A: Mobility Improvement**—The primary purpose of the Project is to improve public transit service and mobility in the Westside Extension Transit Corridor.*

562-3

Your comments about Virtual Presence satisfying all of the criteria of Project have been noted.

Your comments on pages 15-16 and the justification for considering Virtual Presence have been noted.

Please see responses to your comments above that indicate that an "EIR need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative."

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In 1993, the old form of Virtual Presence, i.e. telecommuting, reduced traffic congestion by 30%. A 30% (or more) decrease in traffic congestion would significantly improve mobility. When the overall traffic congestion is reduced 30% (or more), the streets and freeways will be fast and clear without spending another dime on pavement or digging deep holes in the ground.

By comparison the DEIR says the subway will decrease traffic congestion by 1%. That is a statistically insignificant improvement. **Thus, the Subway will do nothing to improve surface traffic.** Instead, the subway requires people to walk long distances and to go underground to exit at Subway stations which may be quite far from their destinations. Thus, the Subway does not satisfy Goal A, whereas VP satisfies it completely.

Goal B: Transit-Supportive Land Use Policies and Conditions—A major aspect of this goal is to locate transit alignments and stations in areas with existing land uses conducive to transit use or in those areas that have the greatest potential to develop transit-supportive land uses.

As noted above, this goal is basically for graft and corruption which will destroy what is left of the City's tax base. None of the mega-projects contemplated under Goal B are necessary under Virtual Presence. The rejection of AB 2531 which Kelo-ed Los Angeles also pulled the rug out from under these "land use policies."

Now that Angelenos know that CRA/LA's eminent domain powers are Kelo-eminent domain powers, the likelihood of another AB 2531 passing is greatly reduced. Kelo-eminent domain is the third rail of California politics. The EIR has to assess the impact on the cost to operate the subway when none of the increased density projects which are set forth on page 4-11 is constructed.

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Goal C: Cost-Effectiveness—*This goal ensures that both the capital and operating costs of the Project are commensurate with its benefits.*

The Subway itself is not cost effective. This extension will cost \$10 Billion and it runs only from downtown to the sea. In order to construct a subway system which would take riders where they need to go, it will cost \$2 Trillion in 2010 dollars!

The benefits of a subway are de minimis when compared to Virtual Presence. VP takes people world wide in less than a second. In fact, VP allows people to be in two, three or four places at once.

For example, a judge in downtown Los Angeles can hold a hearing with attorneys who are in Simi Valley, Houston, Paris and Hollywood at the same time. The judge's VP 3-D monitor allows her to see each participant and each attorney can see the judge and the other attorneys on their 3-D life size monitors. Everyone is Virtually Present at each location.

Then her Honor can move on to her next hearing with attorneys in Dubai and Westwood.

The notion that 19th Century fixed-rail technology can be cost-commensurate with the benefits of VP is simply ludicrous.

The DEIR itself recognizes that for the operation of the subway to be cost effective, the population density within ½ miles of the subway must dramatically increase.

Goal D: Project Feasibility—*The fourth goal is that the Project be financially feasible. Specifically, this goal helps ensure that funds for the construction and operation will be readily available and will not place undue*

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burdens on the sources of those funds. The goal also includes minimizing risks associated with project construction.

A subway here and another there, a system does not make. A subway system is not financially feasible. It would cost about \$2 Trillion in 2010 dollars to come even close to serving the populated areas of Los Angeles. The financial feasibility of the Subway cannot be assessed without taking into account the cost to construct a system. L.A. isn't Disneyland where we can build a small mono-rail between the hotel and It's A Small, Small World.

On the other hand, VP will not raid the taxpayer pocketbooks. Like the Internet, the technological advances are all free enterprise and consumer driven. As soon as newer and large TV monitors are on the market, the consumers devour them. The marriage of TV's and the Internet has arrived and interactive media are expected. Newspapers are learning that if they want their pages to be read, they better have easy access for people to post their comments about the reporting.

Time-Warner is already airing Television commercials for VP, showing how people can hook up for social reasons without leaving their homes. One Time-Warner commercial has five musicians, all in different places logged onto to their computers with four segments on their monitors, each showing one of the participants – and that was on just laptops!

The funds for the Subway have been pried from the taxpayers by threats and frauds. The public is fighting back. When Angelenos learned that AB 2531 would Kelo Los Angeles, such a horrendous back lash arose, that the Governor vetoed it.

The likelihood that the CRA/LA will be able to use its Kelo eminent domain power have just become significantly less. Although it is not explicitly

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stated in the DEIR, the developers were confident that AB 2531 would pass so that the CRA/LA could Kelo all the properties around the Subway station for the skyscrapers which the DEIR envisions. It went through the City process hand in hand with 30/10.

Goal E: Equity—This goal evaluates project solutions based on how fairly the costs and benefits are distributed across different population groups with particular emphasis on serving transit-dependent communities.

There are no subway-dependent communities. Certain people rely on public transportation, and the buses will be many times more efficient with VP than with a Subway. Buses with their greater flexibility of routes have a better chance of taking people closer to their destinations. With 30% (or more) less congestion, the streets will provide faster surface transportation.

Goal F: Environmental Considerations—The sixth goal is to develop solutions that minimize impacts to environmental resources and communities within the Study Area.

Again, Virtual Presence wins hands down. VP requires no digging, no skyscrapers to increase population density in order to justify itself, no more unionized personnel who can hold a city hostage. All the environmental impact of construction is gone.

VP will greatly decrease the demand for all forms of physical transportation and will eliminate all the adverse environmental impacts which the subway will cause.

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***Goal G: Public Acceptance**—This goal aims to develop solutions that are supported by the public with special emphasis on residents and businesses within the Study Area.*

This subway faces massive public rejection as shown with the rejection of AB 2531. There is no factual basis to believe that the public supports spending \$10 B to improve traffic congestion 1%. The public is completely against making Los Angeles more dense – that is why we have an exodus of the middle class.

The major impetus for the Subway did not come from the public but from special interests and their Washington lobbyists. Tell the public that their “subway” dollars will now be used to reduce traffic congestion 30% (or more), to retrofit all government offices with VP and to subsidize their purchase of VP technology in their homes, and their support for the a subway will disappear faster than a snowball on the sun.

The nation and the world has seen three decades of the public's acceptance of more and more technological communications. We see VP each day in our own homes when The Rachael Maddow Show uses Cisco Telepresence for all her interviews. Even while these comments are being drafted, more and more companies are advertising to the public for various forms of VP. There is not only GO To Meetings, but Time-Warner, and plans for virtual stores to supplement on-line shopping. We are accustomed to communicating with people in foreign lands as if they were next to us. Cisco is running TV advertisements for using its products for social networking.

People are using video cams, YouTube, Skype, Eyejot and texting message worldwide – billions of times a day. With life size 3-D monitors, social networking will fuel the large scale move into Virtual Presence. Cisco and Time-Warner are already running Television advertisements showing the marriage of the social and business nature of their Virtual Presence technology.

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VP also will result in a huge increase in productivity. The 1993 Telecommuting Study finds that productivity increases for people who worked from home. (1993 Study pp 20-21, 100% increase in productivity)

The subway reduces productivity. There is no gainsaying that the time required to take a subway is far grater than to take a car and infinitely grater than VP. The person has to walk from his home to the station, descend to the tracks, wait for a train, ride the train while its stops a destinations where he would not stop if he were driving, and then when he reaches his destination, he has to emerge from the underground and walk to his destination. The subway cause a gigantic loss of productive time and the squandering of billions of work hours.

Subways are useless for multiple stops. With a car, people can go to the store and buy five grocery bags of merchandise, stop at the gym, pick up the cleaning in one trip. With a subway, one has to disembark and then walk to the store or gym or cleaners, obtains the items, return to the subway. What should be 20 minutes of errands can turn into an hour of hassle. Besides, no one can carry five bags of groceries on the subway, stop at the gym and pick up the laundry.

5. The DEIR Ignored The World

The DEIR ignored the real world when it ignored Virtual Presence. A cynic would say that the DEIR ignored what one sees everyday around him/herself, because the authors were paid to be blind. Mega-corporations like Siemens have invested billions into fixed-rail transportation, only to see fixed-rail to become obsolete. The Los Angeles County market alone had the potential to be a \$2 Trillion market (2010 dollars).

Fixed-rail transit requires a densely concentrated population. To be economically feasible it needs to operate often at high volume. The high rises

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housing projects meant billions more public dollars for densely populated skyscrapers near the subway stations.

At the Wilshire-Fairfax Station, the DEIR contemplated an additional 3,719 housing units. If these new units were R-1 homes sitting side by side in single file, they would stretch over 42 miles. The 5,788 new housing units near Wilshire-26th Station would stretch almost 66 miles. The DEIR contemplates cramming the equivalent of 100+ linear miles of homes within a 1/4 mi radius of two subway stations.

Because all the land within a 1/4 mi radius of the subway stations already has homes, someone has to Kelo all that property. The Governor just vetoed the CRA/LA's expansion of its Kelo eminent domain powers. Kelo has become the third rail of Los Angeles politics.

The DEIR needs to acknowledge the real world:

(i) VP is upon us as a mode of transportation for work and social networking. VP will reduce traffic congestion by 30% (or more).

(ii) The public hates Kelo. Without Kelo, the private developers around the subway stations will be unable to have the CRA/LA condemn the property for their high rise projects.

Even in its earlier phase of Telecommuting, Virtual Presence merited inclusion as a form of Alternative Transportation. In its 2010 to 2020 incarnation, VP will be the most widely used form of transportation.

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II

Legal duty to Consider Reasonable Alternatives:

562-4 | ● Each project needs to be evaluated on the basis of the reasonable alternatives to that particular project. Citizens of Goleta Valley v. Board of Supervisors, (1990) 52 Cal.3d 553, 566, 276 Cal.Rptr, 410

The DEIR cannot deny that Virtual Presence in the form of Telecommuting was a reasonable alternative mode of transportation which it had to consider. Based on 1992 technology, the 1993 LA Study found a 30% decrease in congestion and a 30% decrease in the need for office space. That study alone rebutted the population premises of the DEIR and showed that another form of transportation was far more efficacious.

562-5 | ● The DEIR had the duty to formulate the reasonable alternatives. Citizens of Goleta Valley v. Board of Supervisors, (1990) 52 Cal.3d 553, 568, 276 Cal.Rptr, 410

The DEIR has no duty to read the minds of the commentators, but it does have the duty to read other official publications that directly bear on the reasonable alternatives. It strains the bounds of credulity to believe that the authors of the DEIR were unfamiliar with this landmark Telecommuting Study.

562-6 | ● The Alternative need only be "potentially feasible." CEQA Guidelines, § 15125.6 (a),

While older people may be so accustomed to older ways and fail to grasp the implications of newer technologies, that is not a basis to exclude a reasonable alternative from the DEIR. Although Virtual Presence has in essence arrived, its habitual application has not. Nonetheless, the DEIR had a duty to make an exhaustive study of the **potential feasibility** of this technology. Mira

562-4

Your comment about the need to evaluate a project on the basis of reasonable alternatives has been noted.

Please see responses to your comments above that indicate that an "EIR need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative."

In addition, the CEQA regulations do not define "all reasonable alternatives." It is therefore incumbent upon the lead agency to define what "all" and "reasonable" alternatives are that could meet the purpose and need of an identified project. Based on the fact that the Virtual Presence is not within Metro's purview, nor an alternative whose effect can be reasonably ascertained and whose implementation can be assured, Metro is not required to consider this as a reasonable alternative.

562-5

Your comment about the duty of the EIR to formulate reasonable alternatives has been noted.

Please see responses to your comments above that indicate that an "EIR need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative."

In addition, the CEQA regulations do not define "all reasonable alternatives." It is therefore incumbent upon the lead agency to define what "all" and "reasonable" alternatives are that could meet the purpose and need of an identified project. Based on the fact that the Virtual Presence is not within Metro's purview, nor an alternative whose effect can be reasonably ascertained and whose implementation can be assured, Metro is not required to consider this as a reasonable alternative.

562-6

Your comment about "potentially feasible" alternatives has been noted.

Please see responses to your comments above that indicate that an "EIR need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative."

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Mar Mobile Community v. City of Oceanside (4th dist. 2004) 119 Cal.App. 4th 477, 489, 14 Cal.Rptr 3d 308

When the EIR fails to include a complete analysis of all reasonable, known, and potentially feasible Alternatives, it destroys the factual basis for approval of the EIR. For that reason, omitting Virtual Presence will make the EIR subject to de novo review. (See below)

- 562-7
- Unless rectified, the DEIR's procedural failure merits review de novo. California Native Plant Society v. City of Santa Cruz (2009) 177 Cal. App.4th 957, 981, 984.

Courts must "scrupulously enforce all legislatively mandated CEQA requirements." (Goleta II, supra, 52 Cal.3d at p. 564.) To do so, "we determine **de novo** whether the agency has employed the correct procedures" in taking the challenged action. [Cite omitted] California Native Plant Society v. City of Santa Cruz (2009) 177 Cal.App.4th 957, 984.

- 562-8
- One could characterize the DEIR's omission of Virtual Presence as a **premature approval** of one Build a Subway Alternative, which is CEQA procedural violation that merits de novo review.

The CEQA Guidelines define "approval" as "the decision by a public agency which commits the agency to a definite course of action in regard to a project." (Cal. Code Regs., tit. 14, § 15352, subd. (a).) The problem is to determine when an agency's favoring of and assistance to a project ripens into a "commit[ment]." To be consistent with CEQA's purposes, the line must be drawn neither so early that the burden of environmental review impedes the

562-7

An EIR is not required to consider every possible alternative to a project. Instead, the range of alternatives in an EIR are limited to those that satisfy the project objectives without creating new or substantially greater significant environmental impacts as compared to the project. Alternatives which are unlikely to attain most of the basic objectives of the project need not be examined. After conducting an Alternatives Analysis and scoping process, MTA determined which alternatives were feasible and warranted in-depth consideration. Virtual Presence was not identified during the Alternatives Analysis or scoping process as a feasible alternative that would meet most or all of the project objectives. Having considered the Virtual Presence alternative, which was brought to MTA's attention for the first time during the public comment period, MTA believes this alternative is too remote and speculative, its effects cannot be reasonably predicted, and it would not meet the primary purpose of the Project to improve public transit service and mobility in the Westside Extension Transit Corridor.

562-8

Your comment about the premature approval of a subway has been noted. Metro conducted an Alternatives Analysis (AA) Study that was ultimately approved by the Metro Board in January 2009. The AA Study considered several different technologies, however, Virtual Presence was not one of the technologies evaluated. Further, Virtual Presence was not identified by the public during the Early Scoping meetings as a technology that they would prefer to have studied. Metro solicited public input during these early meetings on alternatives, mode, station locations, and other issues. No comments were received by the public on the need to evaluate Virtual Presence as a technology in the AA Study. During the Alternatives Analysis and the Draft EIS/EIR phases, Metro evaluated a No Build and a Transportation Systems Management Alternative to the same degree as the proposed Build Alternatives. Metro also analyzed the No Build and the Locally Preferred Alternative during the Final EIS/EIR. A decision to select a Build Alternative as the Locally Preferred Alternative was not made until after the completion of the Draft EIS/EIR. Therefore, there was not a "premature approval" of a build alternative.

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exploration and formulation of potentially meritorious projects, nor so late that such review loses its power to influence key public decisions about those projects.

Drawing this line raises predominantly a legal question, which we answer independently from the agency whose decision is under review. While judicial review of CEQA decisions extends only to whether there was a prejudicial abuse of discretion, "an agency may abuse its discretion under CEQA either by failing to proceed in the manner CEQA provides or by reaching factual conclusions unsupported by substantial evidence. (§ 21168.5.) Judicial review of these two types of error differs significantly: while we determine *de novo* whether the agency has employed the correct procedures, 'scrupulously enforc[ing] all legislatively mandated CEQA requirements' (Citizens of Goleta Valley v. Board of Supervisors (1990) 52 Cal.3d 553, 564), we accord greater deference to the agency's substantive factual conclusions." (Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova, *supra*, 40 Cal.4th at p. 435.) **Save Tara v. City of West Hollywood** (Waset, Inc.) (2008) 45 Cal.4th 116, 130-131

The DEIR's failure is not a factual conclusion, but rather it is a manifest failure to apply the correct procedures which require that all reasonable alternatives be analyzed. CEQA Guideline, § 15126.6(a), (f) Unless there is a full analysis of Virtual Presence and its potential place in society within ten years, the FEIR will have made a procedural violation subject to *de novo* review.

It is legally necessary for the FEIR to look to the next ten years and beyond, as ten years is the shortest time frame to complete the Subway. The FEIR may not ignore Alternatives that are potential feasible, and thus, it may

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close its eyes to the development of Virtual Presence in a time frame comparable to completion of the Subway.

**III
The DEIR's Additional Material Violations**

The DEIR makes other material violations

- The DEIR Violates the 1994 Consent Decree, Bus Riders v MTA, 263 F.3d 1041 (9th Cir. 2001)

Under the Consent Decree the MTA has to provide more consideration to buses than this DEIR provides. When the EIR takes into account the 30% (or more) reduction of traffic congestion which makes more buses a much better option than a subway.

Going back to the 1915 and 1924 Transit studies conducted by the City of Los Angeles, subways are viable only if they significantly decrease the travel time. With 30% less traffic congestion due to VP, buses can use the 10 Freeway for Santa Monica and a better system of Express and Limited bus route can operate on surface streets which won't be crowded.

The DEIR failed to provide buses the full exploration of feasibility as the Consent Decree requires.

- The Inability to Construct the Additional Housing and Employment Units Within 1/4 Radius of the Subway Stations Makes the Subway an Economic Drain on the Taxpayer. Veto of AB 2531

Throughout the Draft EIR, the project is evaluated on the basis of the population and land use within ½ mile of the subway. One exception is the

562-9

The Consent Decree was approved in October 1996, and ran for ten years until October 29, 2006. It had four components: an immediate expansion of bus service, limits on fare increases, and a limit on bus overcrowding expressed as a load factor, and a new service plan. Bus Rapid Transit (BRT) was one of the alternatives considered in the Alternatives Analysis for the Westside Extension Transit Corridor, but not carried through into the Draft EIR/EIS. The Draft EIS/EIR analyzed five subway alternatives, a No Build Alternative, and a Transportation System Management (TSM) Alternative. Nothing in the Consent Decree limited MTA's ability to plan, construct or operate new rail service. The Consent Decree terminated in part in November 2006, and entirely in November 2010.

562-10

Your comment about the density around the stations has been noted. The Draft EIR/EIS includes a discussion of the areas with the potential for additional transit oriented development. However, the proposed project is a transit project and does not include any residential, commercial, or mixed use development. The discussion of potential secondary growth that could occur as a result of the Project is addressed throughout the Draft EIS/EIR. As described in Chapter 4.1 Land Use and 4.16 Growth Inducing Impacts, land use policy is developed and established by the municipal agency where affected properties are located and not by Metro.

Chapter 1 of the Draft EIS/EIR discusses the density of the Study Area. According to forecasts by the Southern California Association of Governments (SCAG), the designated Metropolitan Planning Organization (MPO), population density in the Study Area will increase to more than 14,400 persons per square mile and approximately 14,000 jobs per square mile by 2035. This represents a 10 percent increase in population density and a 12 percent increase in employment density.

In particular, the three largest activity centers are in Beverly Hills (26,000 jobs per square mile), Century City (43,000 jobs per square mile), and Westwood (42,000 jobs per square mile). There were a total of approximately 147,000 jobs in these three centers in 2006. The total number of jobs in these three business centers is comparable to the number of jobs in other major U.S. cities' Central Business Districts, such as Seattle (155,000 jobs in 2000), Denver (126,000 jobs in 2000), and Atlanta (130,000 jobs in 2000).

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housing and employment density near the Subway Stations. For the Subway Station, the Draft EIR used 1/4 mi radius.

Going back to Los Angeles transportation studies in 1915 and 1924, the City has historically used 1/2 mile within a subway stop as the maximum range at which people will use a Subway when there is alternate transportation. If anything, people today are less accustomed to walking, and thus, there is no fact and no rational reason to believe that people will be willing to walk farther than 1/2 mile to the Subway Station.

Unless the Subways are to be a huge, constant drain on the taxpayers for decades to come, the ridership has to be very high. That requires that the population density within 1/2 mile of the stations must be very high in order to provide the required population density for riders.

The Wilshire Corridor lacks that population density.

1. There are too few stations:

This Subway has very few stations. There is, for example, no station between La Cienega and Beverly/Rodeo Drive in Beverly Hills. Robertson and Wilshire is a major business intersection. Doheny and Wilshire is even more significant with 9100 Wilshire's twin tower, the luxury office complex to its immediate west, with 9107 Wilshire with Kate Mantilini's and all its law offices. Crescent and Wilshire is another major intersection. Yet none of these commercial centers has a Subway Station.

There are ample R-1 homes north of Wilshire along Oakhurst, Palm Maple, Elm, and Foothill Drives to be condemned for the Subway Station and additional mixed-use projects. Burton way is within the 1/2 mile of Wilshire Boulevard. However, the draft EIR places these locations outside the 1/4 mi radius for development.

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562-11

Your comment about too few stations has been noted.

The Westside Subway Extension Project is nine miles in length, with seven proposed stations, for an average spacing of 1.3 miles between stations. Distances between stations vary depending on the location of key destinations along the corridor, but most stations are spaced 1 to 1.5 miles apart.

Stations on high capacity, grade separated rail lines like the Westside Subway Extension are often spaced a minimum of 1 mile between stations because they are designed to quickly serve regional trips heading to regional destinations. Unless regional destinations are located closer than 1 mile, local bus lines are typically designed to interface with regional high capacity rail lines to provide connectivity to local destinations every few blocks in between rail stations.

Station spacing of less than 1 mile would slow the Westside Subway Extension Project because it would rarely reach its peak speeds, due to extra wait time to load/unload passengers at stations, and more frequent acceleration and deceleration into and out of stations. Slowing the travel speed of the Westside Subway Extension Project would reduce its effectiveness as an alternative to driving because of increase travel time for transit riders, which would likely reduce ridership.

Additionally, transit patrons are typically willing to walk up to 1/2 mile to access regional rail facilities like the Westside Subway Extension Project. Stations located less than 1 mile apart, without the presence of important regional destinations, would be duplicative, because they would have overlapping 1/2 mile areas where patrons would be willing to walk.

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As the 1915 and 1924 Transit Studies for Los Angeles showed, there has to be a higher population density within ½ mile on either side of a subway. Because one cannot jump on to a subway as its swooshes by underground, there have to be enough Subway Stations so that all parcels of land within ½ mile of the Subway have a Subway station.

Worse yet, there appears to be only one Optional Subway Station between Vermont and La Brea, which is a span of 3 miles with no subway station.

2. There Is No Way to Obtain the Land to Add the Housing and Employment Units Which the Draft EIR Contemplates

Without the Kelo-eminent domain power of the CRA/LA to condemn the properties within 1/4 mi of the subway station, there is no logical reason to assume that these extra-dense mixed-use, high rise, office high rises will be constructed. The draft EIR has to discuss this facet of the Subway, not only its rosy unrealistic projections that everything will be fine and dandy.

On Thursday, September 30, 2010, The Governor vetoed AB 2531. Thus, the CRA/LA is restricted to its former areas and its Kelo-Eminent Domain power may not be used near any subway station except Crenshaw. However, reports are out as of October 12, 2010 that the Crenshaw station has been deleted. The draft EIR has to discuss the impact the Subway will have on communities with CRA/RA Kelo-eminent domain and without CRA/LA Kelo-eminent domain.

The EIR may not conceal from the public that there is no reasonable basis to conclude that the housing or employment units will be constructed as set forth on page 4-11.

562-12

Your comment about housing and employment has been noted. It should be noted that the Westside Subway Project does not include any residential, commercial, or mixed use components. The growth in these areas is based on forecasts from the Southern California Association of Governments (SCAG) and would occur independent of the Subway Project.

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**3. The ½ Mile Limit for Subway Usage
Applies to Both Start Locations and Destinations**

A person who lives within ½ half miles of a subway station will not use the subway when his destination is substantially farther than ½ mile from a subway station.

This fact is not discussed. In order to know ridership, the EIR must provide a factual basis to know how many trips will originate and will also terminate within ½ mile of sub way station.

When calculating traffic congestion, the EIR must also have a factual basis to determine the additional street traffic which the Subway will generate if the projected housing is constructed. In this regard, the EIR must take into account the 2001 San Jose TOD study. The San Jose study showed that people who live within TOD's still need cars. As the San Jose Study showed and as the early Los Angeles Traffic studies, which the draft EIR impermissibly ignores, also showed, in circular cities like Los Angeles, the effective range of subways is extremely restricted. Thus, people within TOD's also need cars.

Assuming that the additional housing is constructed within 1/4 radius of the Fairfax-Wilshire Subway station is constructed, how much more street level congestion will be created? Or, does the draft EIR assume that people will become some type of urban serfs restricted to their own 1/4 mile, except when taking the subway to work?

There are two logical results of the additional density which the subway needs to be financially viable.

- (A) *There will be a dramatic increase in street traffic near each of the subway stations*

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Your comment in support of the Century City Constellation Station and station access/ridership projections has been noted. On October 28, 2010, the Metro Board of Directors identified Alternative 2 (Westwood/VA Hospital Extension) as the Locally Preferred Alternative (LPA). As part of the LPA selection, the Metro Board of Directors decided to continue to study both station location options in Century City (Santa Monica Boulevard and Constellation Boulevard) to address concerns raised by the community regarding locating a station directly on a seismic fault and the safety of tunneling under homes and schools.

In response to the Metro Board of Director's request for more information, further analysis was undertaken to focus on the engineering and environmental aspects of the two options during the preparation of the Final EIS/EIR to expand on the studies conducted in preparation of the Draft EIS/EIR. It should be noted that prior to conducting the comparative study, the Santa Monica Boulevard Station location was shifted slightly to the east from the location in the Draft EIS/EIR to avoid the Santa Monica Fault zone.

During preparation of the Final EIS/EIR, the ridership model from the Draft EIS/EIR was further refined to assess the LPA and incorporate any changes between the Draft EIS/EIR and the Final EIS/EIR. More than ten model runs were conducted to respond to changes, perform additional analysis, and answer questions that were raised during the project development process in the Final EIS/EIR phase. The main types of refinement included feeder bus service, balanced headways and some coding refinement, to determine what changes should be included in the Final EIS/EIR model runs. The refined model predicted boardings along the new Westside Subway Extension stations are approximately 49,300 with the Century City Constellation Station, which is about 3,350 more than the predicted 45,986 boardings with the Century City Santa Monica Station. The main difference in boardings at the Century City Station is the increased walk access trips in the Constellation Station over the Santa Monica Station. The walking time between the TAZ 738 (Century City)'s centroid node and the Century City subway station is 3 minutes in the Constellation Option and 13 minutes in the Santa Monica Option. The number of jobs and jobs per square mile in the 1/4-mile and 1/2-mile area around the Century City Stations is much higher in the Constellation Option than in the Santa Monica Option.

In addition to the refined ridership model, a supplemental ridership study was prepared to evaluate the relative accessibility of the Century City Station locations to surrounding commercial and residential development within a 1/2-mile walking distance. This data was then used to estimate the number of Westside Subway Extension riders who would walk to and from the stations. It should be noted that these ridership projections only consider those riders who walk to the station and these projections are intended to supplement the ridership forecasts. This analysis concluded that the Century City Constellation Boulevard Station attracts more Westside Subway riders compared to the station location along Santa Monica Boulevard. Based on both existing and projected future development in Century

562-13

City, the Constellation Station has the highest concentration of jobs and residents within the critical 600-foot and 1/4-mile walksheds. As a consequence, the 14,005 riders estimated to walk to the Century City Station along Constellation Boulevard is approximately 72 percent greater than the approximately 8,145 riders expected to walk to the Santa Monica Boulevard Station. The Constellation Boulevard Station has the best pedestrian environment, can be expected to attract the most transit riders, and is centrally located to help shape the redevelopment of Century City as an important transit-oriented destination on the Westside Subway Extension.

In addition to ridership studies, the geotechnical studies conducted during preparation of the Final EIS/EIR concluded that tunneling can be safely carried out beneath the Beverly Hills High School campus and the West Beverly Hills, Century City, and Westwood neighborhoods. However, these studies also determined that the Century City Santa Monica Station would cross the West Beverly Hills Lineament, a northern extension of the active Newport-Inglewood Fault, which poses a significant safety risk to passengers at this station location. No evidence of faulting was found at the proposed Century City Constellation Station site.

Based on all of these factors, the *Century City Station Location Report* concluded by recommending that the Century City Station be located along Constellation Boulevard due to seismic safety concerns at the Santa Monica Boulevard Station and higher ridership projections with Constellation Boulevard Station.

Please refer to Section 8.8.2 and 8.8.3 of the Final EIS/EIR for more detailed responses to concerns related to the Century City Station. Refer to Section 7.3 of the Final EIS/EIR and the *Westside Subway Extension Century City Station Location Report* for a comparison of the two Century City Station locations. The results of further ridership studies can be found in the *Westside Subway Extension Technical Report Summarizing the Results of the Forecasted Alternatives* and the *Westside Subway Extension Century City TOD and Walk Access Study*. The results of further geotechnical investigations in the Century City vicinity can be found in the *Westside Subway Extension Century City Area Fault Investigation Report* and the *Westside Subway Extension Century City Area Tunneling Safety Report*. All reports are available on the Metro Westside Subway Extension Project website: www.metro.net/projects/westside/westside-reports.

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Due to the very restricted range of the subway, these additional 3,719 housing units and 9,073 jobs near Fairfax-Wilshire will need parking for their cars and they will use those cars for all the non-subway trips. For example, if you live near Wilshire and Rossmore and you need to go near Wilshire and Doheny, the subway is no good. There is no subway station within ½ mile of your start or you destination. Even with slow street traffic, it will take less time to drive 6th Street and Burton way along the sub way route than it will take to walk to a station, go down underground to wait for a train, and then walk to your destination.

The draft EIR fails to study this aspect of the Subway, despite the fact that this phenomenon was identified as early as 1915 in L.A. Transit study and was confirmed by the 2001 San Jose Study.

*(B) The areas within 1/4 mile of the stations
will attract Default Tenants*

Default tenants are people who are too poor to live elsewhere. They cannot afford a car and are too poor to travel far from home.

**• The Draft EIR Does Not Discuss
the Danger it Causes Angelenos**

Next to travel congestion and parking problems, Angelenos are most concerned about crime and a high percentage are more worried about crime than traffic. The draft EIR fails to discuss the likelihood of increased crime.

What are the statistics for a woman's being mugged while driving a car from Rossmore to Doheny at night alone as compared to the statistics of her being mugged if she walks to a subway, descends underground to wait for a train and then has to walk a mile or so to her destination.

562-14

Your comment on the potential for crime has been noted. Mitigation measures will be implemented to reduce criminal activity for passengers traveling to or from subway stations and while waiting on station platforms or riding on the subway. Such measures include:

- Lighting will be provided at at-grade station entry portals to illuminate common/open areas.
- Communication devices, e.g., Passenger Telephone (PT) and Public Address Systems (PAS).
- Closed Circuit Television (CCTV) systems will enable surveillance of at-grade station entry portals, sub-grade platforms, and critical infrastructure or restricted areas.
- Stations design will be guided by application of Crime Prevention Through Environmental Design (CPTED) principles.
- Signs will be in plain view and will provide passengers with reporting information if suspicious activity is noted.
- Areas will be provided on station platforms so random screening of passenger's bags and hand carry items could be conducted.

In addition to the design measures listed above, various policies and training programs will be implemented to ensure passenger safety. Such measures include:

- Law enforcement will be assigned and posted at Metro locations to provide a physical presence to security.
- Extensive security education and employee training will be conducted for staff.
- Unauthorized vehicles will be restricted from parking near station entry portals. Removal type vehicle barriers could be installed at portals to enforce distances.
- Access will be restricted near or alongside air vent/circulation systems intakes to prevent the introduction of airborne hazards or dangerous chemicals into the sub grade station or tunnel portal.
- Procedures will be established to appropriately respond to increases in the Homeland Security Advisory System National Threat Level or the current Department of Homeland Security System in place at the time.

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The draft EIR has to discuss the fact that more subway use results in more crimes against persons. The draft EIR cannot ignore this significant aspect. Our environment is everything around us, including criminal thugs.

The MTA cannot pretend it does not know about the additional crime that comes with subway stations. There have been community protests over the crime at the Hollywood-Western station.

What will be the extra cost to have more patrol men both down in the subway and along the routes that subway users will have to walk. As it is now, once someone emerges from the Hollywood-Western station, they are un protected. If they want to walk to the 1900 block of North Serrano, they are vulnerable to the gangs in the area. If they drove their car, the chance of a mugging decreases.

The EIR has to discuss the additional crimes against persons which the subway will cause. What will be the cost to ameliorate this danger? If EIR ignores the problem, the victims of crime cannot pretend they were not mugged. To what extent will the threat of gang violence deter subway use, especially at night?

562-15

● **The draft EIR does not discuss the interaction of the different factors**

The draft EIR ignores the interaction between many factors and thus it conceals the real environmental impact. As the subway requires more housing density to be financially viable, the EIR has to discuss the traffic and additional CO2 emissions if the 225 linear miles of additional housing units are built within a 1/4 mi radius of the subway stations. The EIR cannot merely assume that there will not be any adverse consequences.

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562-15

Your comments regarding housing have been noted. It should be noted that the Westside Subway Project does not include any residential, commercial, or mixed use components. The growth in these areas is based on forecasts from the Southern California Association of Governments (SCAG) and would occur independent of the Subway Project including TODs.

Your comment regarding impacts to local police budgets has been noted. Please refer to the *Westside Subway Extension Parklands and Community Facilities Technical Report* and the *Westside Subway Extension Safety and Security Technical Report*.

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What is the impact on the safety to citizens if more are persuaded to use subways? What impact will more subways have on police budgets? The EIR can start with the statistics for the Hollywood Western Station. Experience with the Hollywood subway shows an increase in crime and thus an increase need for police presence on a strained city budget.

Because people who live in TOD's still own cars, how much extra off street parking space will be required for the 3,719 housing units? Base on the San Jose Study, there will be an increased demand of at least 3,719 off street parking space for people who live near the station and people who visit them.

A benefit-cost ratio for the TOD paradigm that is superior to other investments that increase transit market share may not be an a priori possibility in every metropolitan region. Regions differ greatly from each other in their existing land use pattern, travel pattern, transit corridor availability, topography, political culture, and governmental structure. One size does not fit all. *San Jose TOD study, Executive Study p 4*

In brief, the draft EIR cannot assume that there will not be significant adverse environmental impacts by ignoring prior research. Because each Subway TOD is within one the nation's largest circular cities, the draft EIR has to discuss the Subway in relation to the real factors where the Subway is actually located. Furthermore, it has to analyze the interaction between all these factors.

For example, the strong likelihood that the subway stations will result in much worse traffic congestion means that the air quality will deteriorate near the subway stations and the EIR has to study the increased risks of asthma and other respiration illnesses. The draft EIR ignores the health risks.

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Furthermore, each one of the additional risk have to be assessed not only in relation to their cumulative effects but they have to be assessed in relation to Virtual Presence.

- Virtual Presence reduces air pollution in the city and in the desert where our coal burning generators are located.
- Virtual Presence keeps people safer as they are not subject to muggings
- Virtual Presence protects people from air pollution as it results in few trips, especially when LA has an inversion layer;
- Virtual Presence requires no tunneling and risk no loss of lateral support of buildings along Wilshire Boulevard as occurred with the Hollywood subway;
- Virtual Presence require no easements beneath residential properties as the subway requires;
- Virtual Presence does not run the risk of increasing traffic congestion around subway stations (as there will be no subway stations and because Virtual Presence reduces automobile trips by 30% or more)
- Virtual Presence does not waste people's time slowly taking them from one place to another as Virtual Presence moves at 186,000 mph.
- Virtual Presence allows people to be at more than one place at a time; (being on the subway is essentially being in purgatory –

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562-16

Your comment about evaluating cumulative effects in relation to Virtual Presence has been noted.

Please see responses above regarding Metro not being mandated to consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative.

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neither here nor there as you are stuck on the subway breathing in the flu gems of the people near you. See 2009 *Telework in the Federal Government Report, Message from Director re influenza pandemics*)

- Virtual Presence cannot bury you alive in the event of a major earthquake;
- *The 30/10 Plan Shows that prior to writing the EIR, the MTA has already committed itself to the Subway option*

562-17

Congress, L.A., mayor, the MTA Board all support the 30/10 plan to construct 30 years of fixed-rail transit before the public realizes that fixed-rail transportation of people within an urban setting is obsolete. That is a social failure.

Legally, however, the 30/10 Plan shows that the MTA has committed itself to the Subway Alternative prematurely. That is the reason, the only question is asks is How much do we build now and how much do we build later?

The EIR cannot make this same error. The EIR has to make a full and complete investigation of VP as an Alternative mode of Transportation. Furthermore, the EIR has to take into account the impact of building a subway knowing that VP cannot be stopped.

- VP will have a paradoxical impact. It will allow Angelenos to move farther from the Basin, but to the extent there is no further population density over the next decade and L.A.'s historic neighborhoods are not destroyed, VP also allows people to remain in R-1 homes within Los Angeles. That will contribute to a vital city.

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562-17

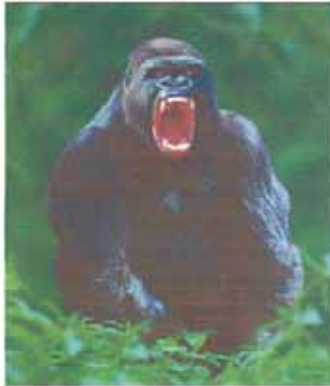
Your comments about the 30/10 have been noted. The concept of the 30/10 Initiative is to use the long-term revenue from the Measure R sales tax as collateral for long-term bonds and a federal loan which will allow Metro to build 12 key mass transit projects in 10 years, rather than 30 years. This will result in substantial cost savings and expedite project benefits. The plan has not been approved and therefore it is still unknown as to if the ability to build projects quicker will occur. However, any project will need to comply with environmental regulations.

**CC-LA's and H.E.L.P.'s Objections to the L.A. County MTA's
September 2010 Draft EIR for the Westside Subway Extension**

- VP will so greatly reduce subway ridership that it will be a horrendous drain on the public treasury.

**IV
Summary**

The DEIR reminds one of The basketball and the Gorilla Test. The MTA is so focused on counting basketballs that it doesn't see the 500 lb gorilla in the midst of the basketball players.



Virtual Presence is that 500 lb gorilla, and it is not possible to ignore a 500 lb gorilla when he wants to be heard.

Item 2.
City of Los Angeles Telecommuting Project,
Final Report, March 1993, Jack M. Nilles



City of Los Angeles Telecommuting Project

Final Report

March 1993

Jack M. Nilles

This report was prepared as a result of work sponsored by the Department of Telecommunications. It does not necessarily represent the views of the Department of Telecommunications, its employees, or the City of Los Angeles. The Department of Telecommunications, the City of Los Angeles, its employees, contractors and subcontractors make no warranty, express or implied, and assume no legal liability for the information in this report. Opinions expressed are those of the author unless otherwise noted.

Note that JALA changed its name from JALA Associates, Inc. to JALA International, Inc. in mid-1992 to more accurately reflect the scope of its activities.

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Executive Summary

History

The City of Los Angeles Telecommuting Project started in early 1989 with a planning project. The project culminated in a formal plan that was submitted to the Mayor and the City Council in August, 1989. The plan recommended implementation of a formal test project that was to include 18 months of active telecommuting and involve 250 telecommuters and a comparable number of members of a control group. The Mayor subsequently requested that the number of telecommuters be raised to 500.

The implementation portion of the project began in April, 1990, with a series of briefings on the project plans to senior City executives. The remainder of 1990 was spent in briefing prospective participants in the project and in selecting the initial set of participants for training.

By the end of 1990, 426 City employees had applied or had been identified by their supervisors for possible inclusion in the project. As part of the selection process, both prospective telecommuters and their immediate supervisors are required to complete background questionnaires. By 1991, 298 employees (and their supervisors) had completed all of the necessary forms. Of these, 279 were recommended by JALA Associates for training and subsequent telecommuting. Although JALA Associates recommended specific individuals, all final selection decisions were made by the management of the participating departments.

Training of the telecommuters and their telemanagers began in January, 1991 and continued through March, 1992, by which time 541 telecommuters had been recommended for training by JALA and 441 telecommuters had been trained, together with their supervisors. Active telecommuting was to begin shortly after the initial training sessions. The rule is



that, once a telecommuter and his/her direct supervisor have attended the training sessions and have signed an agreement on their respective roles and performance expectations, they may begin telecommuting. A few of the participants had already been “guerrilla” telecommuters before they received formal training but most were neophytes. Of the 441 telecommuters trained, only 242 had returned written telecommuting agreements to the project office by December 1992. As of March, 1993, 203 telecommuters were still active.

The formal, data collection portion of the project was completed for most of the telecommuters by July 1, 1992. The data collection period was extended to November 30 for the dozen telecommuters who were trained after January 1, 1992. Therefore, the lengths of individual telecommuting experience range from a few months to more than two years.

Goals and Objectives

The following material, in a smaller typeface, is taken directly from the project plan as submitted to the Mayor and Council. *Telecommuting has become steadily more desirable and practical in the past two decades as the number of information workers has increased and as computer and telecommunications technologies have continued their spectacular advances.*

There are a number of reasons to actively explore telecommuting at this time. Here are a few:

- *Air Pollution. Automobile commuting constitutes the major non-stationary contributor to air pollution. The Southern California Air Quality Management District’s Regulation XV requires medium to large employers to quickly take positive steps to reduce commuting. The Air Quality Management Plan calls for a 20% reduction in commuting via telecommuting by 2010.*
- *Cost Effectiveness. Experience with telecommuting in the private sector and by the State of California has shown significant and lasting increases in the productivity of telecommuters — averaging from 5% to 20%, decreased rates of turnover, space and energy savings and other net cost reductions.*
- *Traffic Congestion. It is reaching unmanageable levels in the downtown area — and in many other Los Angeles locales. It is slowing work and frustrating commuters. Just in Los Angeles millions of hours of potential productivity — and billions of dollars in economic output — are being lost annually from congestion.*
- *Energy Dependency. Commuting continues to account for almost half of the automobile transportation energy use in California, making us increasingly susceptible to fuel shortages and supply interruptions.*
- *Office Space. The City is running low on affordable office space in central Los Angeles. Costs of parking space are rising as well.*



- **Information Technology.** Computers are showing up on more and more desks of City workers. Computers connected to telephone lines provide a significant opportunity to make many forms of information work partially "location independent" and ideal for telecommuting.
- **Attracting/Retaining Personnel.** Telecommuting as a work option has been found to be an effective tool for helping to attract and retain qualified personnel in a competitive market.
- **Access to Jobs.** The mobility disadvantaged, whether it's a result of physical impairments, inadequate transportation, or other factors, can have easier access to jobs via telecommuting.

The objective of the project outlined here is to test those claims with a group of telecommuting City employees.

According to the City's consultant, preliminary cost benefit forecasts point to substantial advantages of telecommuting. For example, if the performance of the telecommuters in the pilot project just equals current experience with the State's project, the costs of the project will be recovered in about one year. If the City telecommuters' performance approaches the higher end of private sector experience to date, the pay-back period could shrink to a few months. After that period, hard economic benefits could significantly outweigh operating costs, unlike other approaches to traffic congestion reduction.

The pilot project has five phases: orientation, participant selection, training, active telecommuting and evaluation. In the orientation phase the prospective managers and telecommuters will be briefed on the project. During the participant selection phase the specific participating departments and telecommuters, and the sites at which they will work will be selected. Next, both managers and telecommuters will be trained and active telecommuting will begin. Finally, the results will be evaluated to answer the questions: should telecommuting be expanded beyond the pilot project; and, if so, in what forms?

Although some details of the project design have changed during its course, the overall goals and objectives have remained the same.

Results

Each of the goals enumerated above has been met by the telecommuters in the project.

- **Numbers.** Our analysis suggests that almost 16,000 City of Los Angeles employees could telecommute at least part time, either from home or from a satellite telework center closer to home than their primary office.
- **Air Pollution and Traffic Congestion.** Automobile use by the telecommuters has been reduced in direct proportion to the extent of their telecommuting. The result is both reduced air pollution and reduced traffic congestion — their cars are off the rush hour roads while they are telecommuting. The average City telecommuter reduces annual air pollution production by 276 pounds of carbon monoxide and 17 pounds of NO_x. If all of the 16,000 potential City telecommuters were telecommuting from home at the rates we think are feasible, annual air



pollution production would be reduced by 6.2 million pounds of carbon monoxide, 1.2 million pounds of unburned hydrocarbons, 380,000 pounds of NO_x, and 26,000 pounds of particulates.

A critical factor is the effect of this on Average Vehicle Ridership (AVR), as monitored by the South Coast Air Quality management District. If all the potential City telecommuters were to telecommute from home, averaging 1.4 days per week, the Civic Center AVR goal of 1.75 would be met without further changes in ridesharing or compressed work schedules. Our analysis indicates that this is feasible.

- **Cost Effectiveness.** The effectiveness of the telecommuters has increased by an average of 12.5% — according to their direct supervisors — relative to their non-telecommuting co-workers. Individual effectiveness increases range from no change to 100%. At this point, the annual economic impact of this improvement alone is about \$6,100 per telecommuter. Other annual benefits can add \$2,000 per telecommuter, for a total of about \$8,000 each. If all the potential City telecommuters were telecommuting, the annual net benefits could be as high as \$140 million, at least \$80 million of which would be in individual effectiveness improvements.
- **Energy Dependency.** The average telecommuter currently saves energy to the tune of about 4000 kilowatt-hours per year, largely from reduced fuel consumption. Not only is the energy saved, the saving accrues to our most important and vulnerable energy resource — petroleum. If all the potential telecommuters were telecommuting 1.4 days per week, the annual energy savings would be about 60 million kilowatt-hours (the equivalent of 1.6 million gallons of gasoline).
- **Office Space.** We estimate that the demand for office and parking space could be reduced by as much as 30% for City telecommuters.
- **Information Technology.** Personal computers are becoming vital tools for almost all City information workers. About 73% of City telecommuters now own their own personal computers and use them for telecommuting. The average telecommuter personally invested \$1400 in telecommuting-related technology in the past year. Some eligible City employees were kept out of the project because they needed personal computers to telecommute but did not have them at home.
- **Retaining Personnel.** Telecommuting is important in retaining the skills of trained City employees; 18% of the telecommuters said the ability to telecommute was a moderate to decisive influence on their decision to stay with the City rather than take a job elsewhere. We estimate the



1992 benefit of that aspect of telecommuting to be at least \$200,000.

Related to this — and to the effectiveness improvements — is the fact that telecommuting clearly enhances the quality of life of the telecommuters.

- **Access to Jobs.** Because of the hiring freeze during the project, we were unable to test the ability of telecommuting to create jobs for the mobility handicapped. However, telecommuting clearly made life easier for those telecommuters who had mobility impairments.
- **Modes of telecommuting.** The figures above are based primarily on the assumption that the telecommuters would be working from home. In reality, we do not expect that all telecommuters would want — or be able — to work from home. A significant number, possibly as much as 60%, would work from satellite offices closer to their homes than their primary offices. These satellite offices could be either City facilities or facilities owned/operated by other public agencies. We would expect that the number of telecommuting days for satellite centers would be higher than those for home-based telecommuting so that the net energy and air pollution impacts would be comparable to those stated above, even though many telecommuters might drive to the satellite offices.

Recommendations

The success of the project leads to the following recommendations.

Continue Existing Telecommuting. Of the 20 departments active in the project, only 2 (employing a total of 5 telecommuters) discontinued telecommuting after the nominal end of the active phase. The rest are continuing telecommuting, for those employees who were involved in the project, until a final decision is made by the Mayor and Council. We recommend that all the present or formerly active telecommuters be allowed to continue/resume telecommuting until that decision is made.

Integrate Transportation Demand Management Strategies. Telecommuting has proven itself to be an effective rideshare strategy. Promotion and expansion of telecommuting should be a formal part of an integrated strategy for managing the use of transportation by City employees.

Create Specific Incentives and Disincentives. Although the project has been successful, it is abundantly clear that there is still significant resistance to telecommuting — not to mention downright hostility — on the part of many City managers. A system of incentives (recognition, factors in promotion/salary decisions, etc.) and disincentives (such as minimum telecommuting quotas) should be devised to overcome that resistance.



Expand Telecommuting. The results of the project clearly indicate that the use of telecommuting should be expanded. Our analysis suggests that at least 15,934 City employees — one-third of the City's permanent staff — could successfully telecommute. Since a possibly large portion of them would be best suited for telecommuting from a satellite office, it is important to begin further testing of satellite operations as soon as possible.

Increase and Expand Training. It is also clear that training in the management methods of successful telecommuting is important to telecommuting's success. Both initial, pre-telecommuting training and follow-up reinforcement are called for. All of the City's telecommuters and telemanagers should receive training.

Improve Access to Information Technology. There is no question that access to personal computers is a major factor in improving effectiveness of City information workers, whether or not they are telecommuters. A number of telecommuting-trained City employees were prevented from participating in the project because they didn't have personal computers at home or were unable to get access to the City's mainframe computer. Our focus group sessions and personal interviews indicated many cases where City employees have invested their own funds in computer equipment that is superior in performance to that in their principal office. It appears that the City is incurring major opportunity costs because of the freeze on computer equipment. It is extremely important that this issue be resolved soon.

Develop TeleService Program. The City has already developed regional City Halls in San Pedro, Van Nuys and West Los Angeles. Telecommuting could be used to further distribute City services all over the City. This may be of particular importance in areas affected by the recent riots. Mini- or micro-City Halls could be developed, staffed by telecommuters living locally, to provide most City services to local residents.

Provide Area-wide Leadership. There are many ways in which the City can show leadership in Southern California. For example, the City should publicize the results of the telecommuting project to other cities and to area businesses. Zoning ordinances should be rewritten to encourage telecommuting (while discouraging potential urban sprawl made possible by telecommuting). The City should cooperate with other Cities and public agencies to share facilities for telecommuters so that public sector employees all over the region can begin telecommuting from satellite offices near their homes.

As a means of implementing these recommendations, the following specific steps are proposed.

Action Plan



Telecommuting Implementation Group. The first step in the expansion process is the appointment by the Mayor of a proactive Telecommuting Implementation Group (TIG) whose primary task is to *motivate and coordinate* the expansion process. Members of the TIG should be proactive senior managers from every department of the City that has, or is likely to have, active telecommuters. The TIG should also include representatives from all of the affected unions. The Chairperson of the group should be someone who is directly concerned, because of the nature of his/her job, with traffic reduction or with productivity improvement. We suggest that the City Rideshare Program Administrator accept this responsibility. The first action item for the TIG should be the development and coordination of uniform telecommuting guidelines.

Telecommuting Expansion Project. The Telecommuting Expansion Project is a larger scale version of the Pilot Project. The process is quite similar.

- First, the Mayor and Council should address the issues of the necessary policies and infrastructure: personnel work site assignment rules; administrative procedures; telecommunications, computer and satellite office requirements.
- Second, a new series of briefings and/or informal meetings with department General Managers and senior managers should be made, focusing on the key policy issues and the specific experiences in their own departments. No department should be left out of this process. Each General Manager should be asked to develop a telecommuting implementation plan and schedule. The plan should include technology, training and space needs as well as emergency preparedness issues.
- Third, a series of familiarization briefings to mid-level managers and supervisors should be held, on a department by department basis.
- Fourth, all potential telecommuters should be given briefings on telecommuting, including clear descriptions of the work options and responsibilities of telecommuters, and should be given an opportunity to volunteer to become telecommuters.
- Fifth, the volunteers and their supervisors should go through a formal selection process that serves as a means for identifying possible problems with telecommuting.
- Sixth, the selected telecommuters and telemanagers should be given formal training in telecommuting management techniques.

Steps three through six need not be completed for all of the telecommuters at once. A better strategy for large departments



may be to implement telecommuting on a division by division basis, or even in smaller increments, as dictated by operational considerations. The overall schedule may be dictated by the requirements of the SCAQMD.

TeleService Pilot Project. Given the severe constraints on the City's budget, it is not likely that a series of conventional local City Halls will be built any time soon. However, it seems entirely feasible to do "reverse telecommuting:" to use existing City facilities that are turned into multi-purpose operations for disseminating a variety of information and completing routine City-citizen transactions. Applicants would be able to go to a local City facility and be in contact with the required experts regardless of the actual location of the experts.

As is the case with telecommuting, the benefits derived from a TeleService program may significantly exceed operating costs. However, until a more thorough analysis is made of the opportunities, issues, potential benefits and costs, it is not possible to gauge the total impact. Therefore, we propose that a pilot TeleService project be planned and developed to explore the opportunity.

Interagency Facilities Sharing Project. Sponsored by the Institute for Local Self Government,¹ a project is currently under way to develop and demonstrate office space sharing arrangements among local governments. The central concept of the project is that local governments can develop satellite office telecommuting arrangements without necessarily leasing new office space elsewhere. A City of Los Angeles employee living in, say, Rialto could telecommute part time from the Rialto Civic Center rather than commuting to downtown Los Angeles — and vice versa. The City should participate in this or a similar project. Our analysis of the residence and work locations of a sample of 580 prospective City telecommuters indicates that only 4 now work at the City (or other public agency) facility nearest their homes.

¹The ILSG is a non-profit, non-partisan research and education organization affiliated with the League of California Cities. Its mission is to promote and strengthen local self government.



Part 1: Project Description

Introduction and Overview

The City of Los Angeles Telecommuting Pilot Project began with a planning project in 1989. The project culminated in a formal plan that was submitted to the Mayor and the City Council in August, 1989. The plan recommended implementation of a formal test project that was to include 18 months of active telecommuting and include 250 telecommuters and a comparable number of members of a control group. The Mayor subsequently requested that the number of telecommuters be raised to 500.

Participant Selection

The implementation portion of the project began in April, 1990, with a series of briefings on the project plans to senior City executives. The remainder of 1990 was spent in briefing prospective participants in the project and in selecting the initial set of participants for training.

By the end of 1990, 426 City employees had applied or had been identified by their supervisors for possible inclusion in the project. As part of the selection process, both prospective telecommuters and their immediate supervisors were required to complete background questionnaires. Of the total number of people identified in 1990, 298 (and their supervisors) had completed all of the necessary forms. Of these, 279 were recommended by JALA Associates for training and subsequent telecommuting. Although JALA recommended specific individuals, final selection decisions were made by the management of the participating departments. Eligibility to join the project was held open through March, 1992, in order to accommodate departments that were slow in making acceptance decisions.

Training

Training of the telecommuters and their telemanagers began in January, 1991 and continued through March,



1992, by which time 540 telecommuters had been recommended for training by JALA and 441 telecommuters had been trained, together with their supervisors. Active telecommuting generally began shortly after the initial training sessions. The rule proposed by the consultant is that, once a telecommuter and his/her direct supervisor have attended the training sessions and have signed an agreement on their respective roles and performance expectations, they may begin telecommuting. A few of the participants had already been “guerrilla” telecommuters before they received formal training but most were neophytes. Some trainees’ telecommuting was postponed because of problems in securing equipment necessary to make their telecommuting fully effective. Of the 441 telecommuters trained, only 242 had returned written telecommuting agreements to the project office by December, 1992. The agreements indicated that they were officially sanctioned by their departments as telecommuters.

The Fire Department withdrew from the project, at the order of the Chief, immediately after Department personnel were trained. The reason given for the withdrawal was that the Department could not afford the cost of the projects, although at no time was the Department told it would be liable for any costs related to the project other than the time required by participants in completing survey forms.

Evaluation

Evaluation of the project began with the selection phase and continued through 1992. Details of the evaluation philosophy and process are given in Appendix 2.

The formal, data-taking portion of the project was scheduled for completion as of June 30, 1992. However, because of the late entry of a number of telecommuters, data collection continued through November, 1992 for the 39 telecommuters who were trained after January 1, 1992. This additional time was to ensure the inclusion of meaningful data from their telecommuting experience in the final evaluation.

Participation

Twenty-two City departments have been actively involved in the project at some point. The final status is shown in Table 1. The table shows, for each department, the total number of:

- applicants of all sorts;
- completed sets of applications;
- positive recommendations, by JALA Associates, for some form of telecommuting;
- telecommuters actually trained;



- telecommuting agreements signed and returned to the Project Manager
- baseline and mid-term evaluation questionnaires returned.

Table 1: Participating Departments

Department	Total Applications	Forms Completed	JALA Approved	TCers Trained	Agreements Received	Baseline Evaluation	Midterm Evaluation	Final Evaluation
Building & Safety	44	37	37	41	21	11	16	13
City Attorney	60	30	29	22	14	14	21	15
City Clerk	44	38	35	0	0	0	27	16
City Planning	57	48	45	28	22	15	27	16
Community Development	10	8	8	9	5	3	5	5
Controller	13	11	9	11	11	2	10	7
Employee Relations Board	3	3	3	3	3	0	0	0
Environmental Affairs	3	1	2	3	3	0	1	1
Fire	37	30	30	11	1	0	6	0
General Services	10	10	10	10	5	5	7	1
Harbor	5	5	5	5	3	3	4	2
Information Services	100	65	55	48	21	24	43	34
Library	42	21	21	29	3	0	18	10
Mayor's Office	2	0	0	0	0	0	0	0
Pensions	9	9	9	7	7	4	6	4
Personnel	24	22	21	14	12	9	15	14
Police	208	141	140	115	82	67	95	54
Public Works	23	21	21	15	9	9	15	12
Recreation and Parks	23	22	19	8	8	7	18	11
Telecommunications	7	4	4	5	3	1	2	2
Transportation	22	21	21	12	9	6	14	7
Water & Power	49	23	17	45	0	0	12	11
TOTALS	795	570	541	441	242	180	362	235

Note that some of these departments did not actively participate in telecommuting. For example, the Fire Chief decided not to have his employees participate after they had completed training. The City Clerk, because of staffing constraints, did not approve training for any of his employees, although they were allowed to be members of the control group. Some recommended (by JALA) employees in both of these departments volunteered to serve as members of the control group for the mid-term and/or final evaluations.

In general, the remaining departments approved only their very best people for the project; both the telecommuters and the members of the control group were rated by their supervisors as being in the upper third of those employees with similar experience. Consequently, although JALA recommended more than the target of 500 telecommuters for training—and trained almost 90% of the target group—only about 75% of the number trained seem to have been approved by their department management (as estimated by the number of agreements received by the Project Manager). Of those who were trained, 55 had retired or transferred to non-participating units by the end of the project. Of the remaining 321 trainees, 156 (64% of those who had signed agreements to complete the questionnaires) had returned the final evaluation questionnaires by



December 1st. "Questionnaire fatigue" is a common problem in evaluation studies. In this case the resolve of the participants was further tested by the length of the final questionnaire — more than 500 items.

Table 2: Department Status in Early 1993

Department	Trained	Currently Active	Never Started	Transferred/ Reassigned	Promoted	Left Department	Voluntarily Quit Telecommuting	Supervisor Terminated Telecommuting	Comments
Building and Safety	41	14		11	3	6		7	Needed 7 for public counter service
City Attorney	22	11		1	1			9	Participation cancelled at nominal end of project
City Planning	28	14	6	3		2	3		
Community Development	9	4	1	2		1		1	Not enough to do at home
Controller	11	4	7						
Employee Relations Board	3	2	1						No computer available for employee
Environmental Affairs	3	1					2		
Fire	11	0	11						Participation cancelled by Chief Engineer and General Manager
General Services	10	0						10	Participation cancelled at nominal end of project
Harbor	5	0						5	Participation cancelled at nominal end of project
Information Services	48	26	22						
Library	29	13	5	2		3	5	1	Too difficult to carry books around; face-to-face needs
Pensions	7	5		1			1		Long term medical leave
Personnel	14	4	2	3		5			
Police	115	66	23	22		3	1		Medical leave
Public Works ²	15	16		2	1			2	End of project; insufficient task definition
Recreation and Parks	8	6			1	1			
Telecommunications	5	3		1			1		Long term medical leave
Transportation	12	2	1	5	2			2	Daily face-to-face meeting schedule
Water and Power	45	12	30	2		1			
TOTALS	441	203	109	55	8	22	13	37	

This failure of departments to "activate" trained telecommuters is a serious issue since telecommuting's highest City priority is as a transportation demand management tool. If telecommuting is to become a significant means of reducing traffic congestion, then a fairly large percentage of City employees will eventually have to become at least part time telecommuters³. The Telecommuting Project was a primary way of giving

²Public Works added 6 telecommuters, using the training materials provided by JALA during the formal sessions.

³Our analysis of City job titles indicates that about 16,000 permanent City employees could become at least part-time telecommuters. See the chapter on impacts.



City managers the opportunity of honing their management skills. Yet entire departments missed that opportunity. Others took only very tentative steps.

The final status of the telecommuters in the project is given in Table 2. Overall, 338 participants telecommuted at some point in the project, with 203 still active as of February, 1993. Note that some departments, and some organizational units of departments, elected to discontinue telecommuting at the nominal end of the project, affecting 25 telecommuters — all of whom wished to continue telecommuting.

Types of Employees

First, as a test of the breadth of the selection process, Table 3 shows the breakdown by the type of work reported by the participants.

Table 3: Reported Types of Jobs

Job Type	% of Telecommuters	% of Non-Telecommuters
Architect	1.9	3.9
Policy Analyst	1.3	1.3
Finance	1.3	1.3
Research & Development	1.3	1.3
General Administration	7.7	3.9
Public Safety	20.0	7.9
Customer Service	1.3	1.3
Field Service	0.0	2.6
Office Services	1.3	5.3
Office Systems	1.9	0.0
Engineering	9.7	13.2
Accounting	3.9	2.6
Legal	7.7	3.9
Human Resources	5.2	10.5
Information Services	16.1	22.4
Program Management	3.2	2.6
Planning	7.7	1.3
Other	8.4	14.5

Telecommuters and Controls

As of 1 December, 1992, we had received completed final evaluation questionnaires from 156 active telecommuters and 79 non-telecommuters in this group of respondents. This is a sufficient number to get a reasonable idea of the differences, if any, between telecommuters and non-telecommuters after more than a year of telecommuting.

Of the telecommuter group, 5.2% considered themselves to be primarily managers, 66.7% considered themselves to be primarily professionals, 19.0% claim both managerial and professional roles, 6.6% are paraprofessionals or secretaries, and 2.6% classify themselves in the "Other"



category. Clearly, *it would have been more revealing if significantly larger numbers of paraprofessional, secretarial and clerical workers had been included in the project*, since the City employs fairly large numbers of people at these levels. Nevertheless, there is clearly a broad spectrum of job types represented in this group. The distribution of control group members differs slightly, with 2.6% managers, 58.4% professionals, 24.7% as combined manager-professionals, 13.0% as paraprofessionals or secretaries, and 1.3% as “Other.”

The average telecommuter is 38.9 years old⁴, has worked for the City 13.6 years, for his/her Department 5.1 years, in his/her particular job 4.0 years and has a gross annual salary of about \$50,600. The average size of the unit in which the participant works is 12.3 people; the median work unit size is 8. Most, 84.2%, of the telecommuters in this sample work in or near downtown Los Angeles.

The telecommuters do not take much sick leave, except for maternity leave; the median annual number of sick days taken in 1989 was 6, with 5 days in 1990 and 4 as the median in 1991 during telecommuting. The telecommuters decreased the average number of sick days taken between 1989 and 1990 by 1.2, and between 1990 and 1991 by 1.8. Most of the overall reduction in the most recent year was a result of an average 3 day reduction⁵ by female telecommuters, presumably related to the telecommuting advantage in the care of sick children.

Most of the telecommuters own their own homes, averaging 1849 square feet. Their average electricity bill is \$98, the gas bill is \$23 and telephone charges average \$73 per month. The apparent telephone bill increase⁶ for telecommuters, since most departments are not paying for home telecommuters' phone charges, is only \$3.59 per month. Even this \$3.59 difference may be misleading, since the telecommuter data include one very large telephone bill (\$860). The median telephone bill for the telecommuters was \$51, making their bill \$7.50 less than that of the control group. Therefore, we conclude that there is no significant difference in the telephone costs between the two groups. Yet, telephone bills are generally thought to constitute the largest operational cost element for telecommuting.

⁴The average age for males is 39.8, for females it is 38.2 years.

⁵The reduction was more than 5 days per year, compared with female members of the control group.

⁶As compared with the bills for the control group.



The average control group member is 41.0 years old⁷, has worked for the City 14.5 years, for his/her Department 5.7 years, in his/her particular job 4.7 years and has a gross annual salary of about \$47,800⁸. The average size of the unit in which the control group member works is 12.9 people; the median work unit size is 9. As with the telecommuters, almost all, 94.7%, of the control group members in this sample work in or near downtown Los Angeles.

Also like the telecommuters, the control group members do not take much sick leave; the median annual number of sick days taken were 6 in each of 1989 and 1991, 5 in 1990. On the other hand, the average telecommuter took 2 sick days (or 33.3%) less than the average non-telecommuter during the telecommuting period.

Most of the control group members own their own homes, which are slightly larger than the telecommuters', averaging 1918 square feet. Their average electricity bill is \$94, the gas bill is \$28 and telephone charges average \$69 per month, with a median telephone charge of \$58.50. In short, the members of the control group match the telecommuters fairly closely in their general characteristics. The major difference is a utility bill (including telephone charges) of about \$3.09 per month more for the telecommuters.

Men have a slight majority among the participants, 53.3% of the telecommuters and 57.9% of the control group. About two-thirds, 66.7%, of the telecommuters and half, 51.3%, of the control group members live in dual earner households.

Forty seven percent of the telecommuters and 22.1% of the control group members are on a traditional work schedule: five 8-hour days per week. Only 5.8% of the telecommuters and 3.9% of the control group members work on the 4-10 schedule (four 10-hour days per week), while 45.5% and 74.0%, respectively, are on a 9-80 schedule (five 9-hour days one week; three 9-hour days and one 8-hour day the next week).

⁷The average age for males is 41.2, for females it is 40.4 years. In 1990, male and female federal workers averaged 43.6 and 40.5 years, respectively, as compared with 37.3 years for both male and female employees in the private sector. Hence, City employees are roughly comparable in their age demographics to other information workers.

⁸Men in the control group average \$51,600 while women receive an average of \$42,800 per year. The salary gap between male and female telecommuters is not as large, with males averaging \$52,300 and females averaging \$49,000 per year. Either way, however, the male-female salary gap is statistically significant at the 0.0016 level.



Accomplishments

Commuting Data

In this report, the overall accomplishments of the project are summarized. For more detail, the reader is advised to examine one or more of the individual project reports.⁹

A primary goal of the Telecommuting Project is to reduce commuting. Hence, the commuting patterns of the participants are very important. As was mentioned earlier, most of the participants who have responded to the evaluation questionnaires commute to City Hall or the general downtown Los Angeles area.

Residence Location

There is no particular pattern of residence locations for City employees. One hundred forty different residence zip codes were identified by the 235 employees who returned the final evaluation questionnaires.¹⁰ The two most “intensely” populated zip code areas have 5 employees living in them. This acts to complicate the problem of satellite telework center selection since there are no obvious, unequivocal locations that pop out of the data.

Commute Distances and Times¹¹

The average one-way commute distance for the active telecommuters is 22.8 miles¹²; the median commute is 20.0 miles. The minimum one-way commute for a telecommuter is 3 miles, the maximum is 67 miles and the mode (the most common distance) is 15 miles.

The non-telecommuters’ average one-way commute is 23.1 miles; the median and the mode are 23 and 26 miles, respectively. Their reported commute distances range from 7 to 60 miles.

⁹There are three cost-benefit analysis reports; two focus group summary reports; and special reports on departmental impacts; area-wide impacts; labor, management and legal issues; and barriers to telecommuting. These reports are available from the Department of Telecommunications.

¹⁰As contrasted to the 161 different zip codes, with a maximum of 8 in a single zip code, identified by the 304 employees who returned mid-term evaluation questionnaires.

¹¹Note: the commute times and distances are taken from the mid-term evaluation and trip analysis data. Through a clerical error, the commuting data portion of the final evaluation questionnaire was omitted from all but 40 of the questionnaires; only 15 of these were returned by the reporting deadline. However, since household moves were reported in a different section of the questionnaire, the mid-term data should be applicable to the final situation.

¹²The 31.9 mile average found in the baseline survey implies that the first group of telecommuters was biased toward those applicants who lived at greater than average distances. The mid-term survey had an average one-way commute of 24.9 miles and a median of 21 miles. The mid-term maximum was 170 miles.



Commute times from home to the office average 48.3 minutes for the telecommuters and 44.8 minutes for the non-telecommuters. The median morning commute times are 45 minutes for both groups. Afternoon commutes are significantly longer for both groups, averaging 58.1 minutes for the telecommuters and 57.4 minutes for the non-telecommuters, respectively. That is, the telecommuters average 106 minutes per day commuting, when they commute, and the non-telecommuters are on the road an average of 102 minutes per day, not much difference. ***If these people were to commute 220 days per year, each of these group members would spend about 9.6 work weeks (24 waking days) per year on the road¹³.***

Commute Modal Choices

Three of every five (61.4%) of the telecommuters drive their own cars to work at the rate of least four days per week when they are commuting, a slightly higher proportion than the 58.7% of the non-telecommuters who do so. Seventy-one percent of the telecommuters and 70.7% of the control group members do not belong to a car- or van-pool (ridesharing). Similarly, 26.7% of the telecommuters and 34.7% of the non-telecommuters do not drive their own cars at all to work. The average number of days per week each group drives to work is 2.6 days and 2.8 days per week, respectively for the telecommuters and non-telecommuters. Twenty-nine percent of the telecommuters carpool at least one day per week, versus 20.7% of the non-telecommuters. On average, the telecommuters carpool 1 day per week, as contrasted to 0.82 days per week for the non-telecommuters. The average days per week taking the bus are 0.31 and 0.63, respectively.

Of those who rideshare, 34.1% of the telecommuters and 52.4% of the non-telecommuters drive to their pickup point. Since each of these trips involves an engine cold start, the pollution reducing advantage of ridesharing is significantly diminished. The average trip time to the rideshare pickup point is 8.4 minutes for the telecommuters and 9.5 minutes for the non-telecommuters.

In short, telecommuters live slightly farther from work than do the non-telecommuters and they are about as likely to drive alone when they do commute. Overall, the commuting patterns of both groups are similar. Note that significant numbers of those using carpools and vanpools in both groups report driving their cars to the pool pickup

¹³A work week is taken as 40 hours; a waking day is 16 hours, under the assumption that most people get about 8 hours sleep per day and that this does not occur while they are commuting. Waking days constitute potential disposable time for the telecommuters. Work weeks constitute potential productive time for employers.

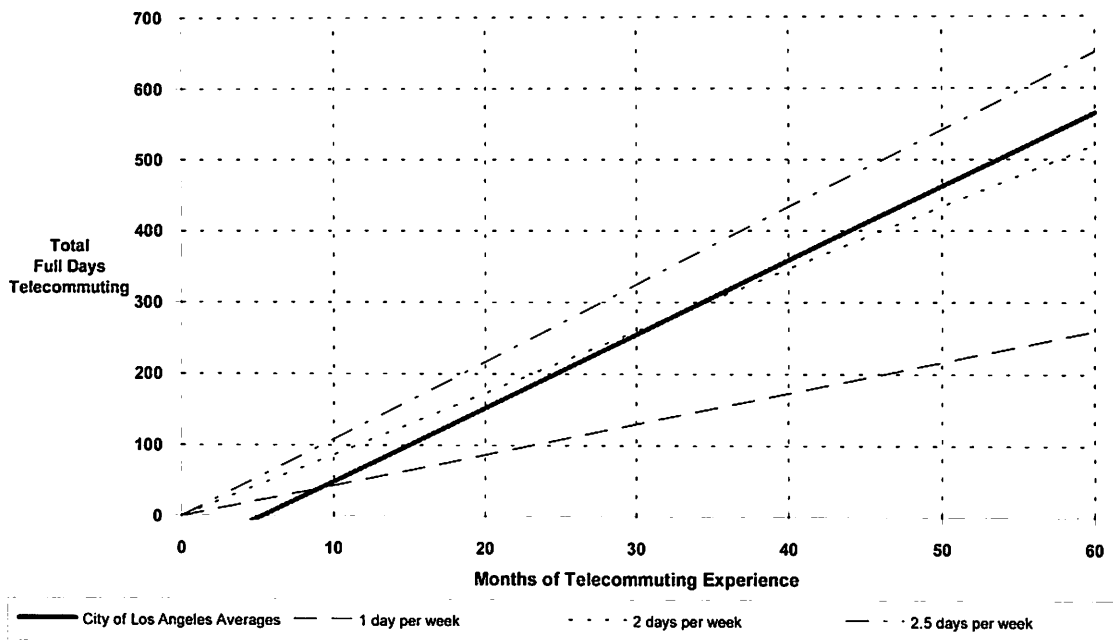


location. Therefore, a high percentage of their telecommuting will result in real net trip savings and air pollution reduction.

Level of Telecommuting Achieved

Of the 325 individuals who had responded to our final survey by December, 156 were active telecommuters. Of the active telecommuters, 62.2% have been telecommuting more than 1 year, with only 7.7% who have been telecommuting less than 6 months.

Figure 1: Projected Telecommuting Rates



The nominal goal for the project was to have participants telecommuting at least one day per week, on average, with a nominal maximum average of two days per week. Some jobs are suitable for almost full-time telecommuting, in our experience, while others might encounter difficulty reaching the one-day-per-week goal. Some of the telecommuters found that they could not continue telecommuting at the same rate that they tried the first month. Others found that they could increase their rate of telecommuting. Still others have maintained their original rate. The overall average for the first month of telecommuting was 4.0 days, with median and mode also at 4 days and the range going from 1 to 23 days. For the first month of their telecommuting, 99% of the telecommuters worked at home 8 days or less.

In practice, the number of telecommuting days per month tends to increase over time. An analysis of the historic data for the project shows an expected average of 4.2 days per month for those who have been telecommuting for a year.



Telecommuters with two years of experience are likely to be telecommuting about 8 days per month. For comparison, the State of California Telecommuting Pilot Project showed an average of 5.2 days per month at the end of the first year of telecommuting and 6.5 days per month at the end of the second year. A linear regression analysis¹⁴ of the Los Angeles telecommuting frequency data indicates that the telecommuters will tend to telecommute about 2.4 days per week as they gain experience with telecommuting. Figure 1 shows the regression line. Note that the line begins only after a few months of telecommuting. This is indicative of the fact that beginning telecommuters tend to telecommute one or fewer days per week.

Although the training sessions for the telecommuters stressed that only full days of telecommuting would count, since the primary objective is to eliminate car trips, some partial day telecommuting was expected. In fact, 27 of the telecommuters also did some part-day telecommuting, one of them for 10 days in the most recent month before the survey. Half of the part-day telecommuters left home for the office between 7:00 and 9:00 a.m., the center of the time span proscribed by the SCAQMD in Regulation XV. Hence, this telecommuting had essentially no positive impact on the air quality problem.

One concern with telecommuting is whether it will increase car use, since an “extra” car may be available when the telecommuter is working at home. Twenty-three percent of the telecommuters said that the car was indeed used by themselves or someone else in their household when they worked at home (the remaining 76.9% maintained that it was not in use). **Of those who stated that their car was available, 23.1% (5.8% of all the telecommuters) stated that there was an overall decrease in non-commuting car use in addition to the decrease due to telecommuting!** To counter this, 23.1% (5.8% of all the telecommuters) stated that there was some additional car use, but not enough to counteract the telecommuting reduction. An additional 5% of the car-available group (1.3% of all telecommuters) said that their added non-commuting car use acted to cancel the reduction from telecommuting. In summary, only 8.4% of the telecommuters reported any erosion of the car use savings.

¹⁴Linear regression is a statistical procedure that fits a straight line to a set of data points. In this case the data points are length of time telecommuting and the number of telecommuting days during that period.



Analysis of the detailed trip logs¹⁵ that were administered in March, 1992, showed that some of this additional car use was the result of telecommuters performing chores that otherwise would have been carried out by other family members. Hence, the slight additional use of their cars by some telecommuters may be overstated, since many of the “new” trips replace trips that would have occurred anyway. The net result of the actual trip measurements was an overall reduction in car use over and above the telecommuting reduction. ***At this point, to be conservative, we conclude that telecommuting produces exactly the car use reduction that equals the reduction in commute trips. Therefore, it completely satisfies the primary goal of the project: telecommuting-eliminated trips are not replaced by other trips.***

The most popular locations for the telecommuters' home offices are the den or study (20.8%), a spare bedroom

Table 4: Activities Performed While Telecommuting

Activity	% who engage in it
Thinking/planning	69.2
Reading	68.6
Writing (without a computer)	55.1
Text/word processing	58.3
Research	55.1
Coordinating by telephone	44.9
Record keeping	17.3
Computer programming	20.5
Working with data bases	22.4
Other	20.5
Graphics/layout	10.9
Coordinating via computer	8.3
Having meetings	2.0

(29.9%) and the dining room (13.0%). The average space used for telecommuting is 173 square feet (about 9% of their total floor space), with an average of 133 square feet used exclusively for telecommuting. Eighty-three percent of the telecommuters own their own detached-structure homes, 6.5% live in apartments and 7.7% live in condos or townhouses. The median home has 7 rooms.

The average telecommuter allocates about 37% of his/her weekly work tasks for the telecommuting period. *Given the overall average of 0.9 days per week telecommuting, that works out to 37% of the work being accomplished in 18% to 23% of the work week; possibly an average 100%*

¹⁵Cf. the project report: *Telecommuting Travel Impact Analysis: Los Angeles Telecommuting Pilot Project*, July 1992, by JALA Associates.



productivity increase per telecommuting day. Table 4 shows what the telecommuters are doing when they telecommute. While 17.5% of the telecommuters view telecommuting as a temporary or occasional thing, 82.5% (up from 77% at the mid-term survey) consider it to be a permanent change to their working ways.

Performance Changes

An important criterion in assessing the desirability of telecommuting is its impact on employee effectiveness. As a minimum acceptance criterion, overall work performance should not degrade from its pre-telecommuting values. As is the case with the quality of life factors, we have concentrated on assessing *changes* in, rather than absolute values of, worker effectiveness. Several indirect measures of effectiveness factors are included in our evaluating survey questionnaire. However, the most numerically clear test is a direct question asking each respondent whether, and how much, their effectiveness changed since telecommuting began.

Quantitative Estimates

Of the group of telecommuters, the range in their self-estimate responses ran from no change (twenty cases) to increases of 100% (five cases). The average response for all the reporting telecommuters was an increase of 29.9% with a median response of a 25% increase. In the case of the non-telecommuters, the range in responses ran from a decrease of 50% (one case) to an increase of 100% (three cases)¹⁶. The average response for the non-telecommuters was an increase of 23.8%, with a median response of 20%. The difference between the telecommuters' and non-telecommuters' average self-estimates of effectiveness change is 6.1%. The difference is significant at the 0.09 level.¹⁷ About 13% of the telecommuters and 25% of the non-telecommuters indicated no change in their effectiveness since telecommuting began.

Note that the above figures are derived from the *employees'* responses. Typically, supervisors' estimates of employee effectiveness are lower than those of the employees themselves. Consequently, a parallel survey was made of the participants' supervisors. The supervisors' estimates of the telecommuters' effectiveness changes averaged 21.8%; their estimate of control group members' effectiveness changes averaged 9.3%, a difference of 13.5%. In this case,

¹⁶Non-telecommuters can increase their effectiveness through such means as more experience or training, fewer interruptions from (telecommuting or other) co-workers, greater maturity in work attitudes, etc.

¹⁷That is, the odds are 10 to 1 that the difference is meaningful.



the difference is significant at the .008 level.¹⁸ Twenty-five percent of the telecommuters' supervisors and 48% of the control group members' supervisors indicated no change in effectiveness. Hence, **the telecommuters are showing clear effectiveness improvements relative to the members of the control group, particularly in the estimation of their supervisors.**

There are some clear differences of opinion between supervisor and employee concerning effectiveness change. The telecommuters' self estimates tended to agree more closely with that of their supervisors. Nineteen percent of the telecommuters and supervisors agreed exactly on the effectiveness changes; 8% of the supervisors and control group members agreed. Twenty-six percent of the telecommuters received higher ratings from their supervisors than they gave themselves. Twenty-one percent of the control group members received higher than their self-ratings from their supervisors. The most interesting aspect of these results is that the supervisors' estimates have a much greater difference between telecommuters and non-telecommuters than do the individuals' self-estimates.

Qualitative Estimates

A more qualitative view of the impact of telecommuting was obtained in the focus group meetings that were held at intervals during the project. These views are more indicative of attitudes, rather than of measurements made during the project.

Supervisor/Subordinate

One supervisor, commenting on the attitude toward telecommuting of other managers in the organization, quoted them as saying: *"Why commit to it when it'll go away?"* In another department, the perceived attitude of upper management was more actively hostile. In most departments, a mixture of pro- and con- attitudes was perceived. In all of the focus group sessions requests were made for more publicity about the project, particularly directed at upper management.

On the positive side, all of the supervisors attending the sessions felt that telecommuting should be continued after the end of data-taking. Some supervisor's comments:

"It's [succeeded] to the point where you have to make a case NOT to telecommute,"

"This is not a benefit; it's management deciding where work is to be done—as needed;"

¹⁸Here, the odds are 127 to 1 in favor of a meaningful difference.



"I can count the hours gained by one of my female telecommuters with child care problems; it's a major improvement;"

"You just can't keep up with required reading without telecommuting."

Telecommuting has proved to be a communication enhancer for both telecommuters and supervisors/subordinates: *"I like to call you when you're telecommuting because I know I have your undivided attention"* or *"It's the only time when I know that I can get in touch with you."* Note that this works both ways; the first quote is by a telecommuter about his supervisor. This enhanced communication, coupled with the increase in decision making by telecommuters, has allowed at least one manager to cope with a growing staff.

This combination of enhanced communication and increased telecommuter responsibility was a recurring theme of the focus groups. In contrast, some managers' apparent preoccupation with control was also a recurring theme. One supervisor commented on the non-participation of one of the City departments in the project: *"The mini-micro-management mentality of [the department] will keep them from taking advantage of telecommuting."* Several telecommuters in one department noted that the products of their telecommuting days were given far more scrutiny than their in-office work:

"I have to turn in my [telecommuting day's] work for inspection as soon as I come in to the office on the following day. If I'm not finished, I have to personally explain to the division manager; this doesn't happen on non-telecommuting days."

This is a common phenomenon at the outset of a telecommuting project. It tends to diminish or disappear as telemanagers gain more experience. Some of the longer-term telecommuters in the groups, and several in the 1992 groups, said that their supervisors relaxed noticeably once they saw the improved, on-time output from the telecommuters.

Nevertheless, the continued demonstration of these attitudes led to the recommendation, in almost every one of the 1992 meetings, that mid- and upper-level supervisors, as well as direct supervisors, be given telecommuting training. Appendix 3 includes quotes from the final supervisors' evaluation questionnaires.

Two supervisors stopped their employee's telecommuting because of performance drops. In one case, the employee could not assemble enough work to telecommute entire days at a time. In the other case, the employee was simply



unable to adequately identify deliverables, set up a schedule and set priorities.

Colleagues

As expected, the primary reaction of non-telecommuting colleagues of telecommuters was felt to be envy. A frequent remark in the sessions was that neither colleagues nor supervisors thought that telecommuting was “real” at first. Once they discovered that telecommuting was actually happening, they felt left out. In some cases, outright hostility was perceived: *“One person won’t even talk to me anymore.”* In most cases this initial friction has diminished or even turned into support.

The requirements for telecommuting are being disseminated informally among the telecommuters’ colleagues. One telecommuter remarked: *“The rest of the people in my group know who the slackers are. They would really complain if any of [the slackers] were selected for telecommuting.”*

The question of reduced casual interaction among co-workers remains. Some individuals felt that their interaction was reduced, while others felt it had increased, although often on the phone instead of face-to-face.

We regularly asked focus group attendees whether their co-workers would be disposed to telecommute. Several participants mentioned that their colleagues originally declined to participate in the project because of its pilot status. They [the colleagues] felt that it would be too much of a risk/disappointment *“to get all fired up about telecommuting, then have it turned off suddenly.”* A certain amount of *“I told you so”* commentary was received by Harbor Department telecommuters after they were told to stop telecommuting after June 30, 1992.

A different view of colleagues’ attitudes was offered by another telecommuter: *“When they [the co-workers] found out they had to be accountable for their work, their enthusiasm went way down.”* This from co-workers who were accusing the telecommuters of goofing off.

These and similar incidents led several telecommuters to suggest that telecommuting training be given to non-telecommuters as well as to the telecommuters.

Training Influences

One of the elements of the analysis is to see whether the initial training sessions for the project had any influence on the effectiveness outcomes. Table 5 shows the effectiveness estimates as a function of who was trained. A direct reading of the table can be slightly misleading, since there are only a few cases among the telecommuters where either no one or only the supervisor was trained. The overall



evidence is that it is particularly important that supervisors receive training.

Table 5: Estimates of Effectiveness Increases by Level of Training

Training Received by:	Supervisors' Estimates		Self-Estimates	
	Telecommuters	Non-Telecommuters	Telecommuters	Non-Telecommuters
Neither	21.4%	6.0%	33.3%	21.3%
Telecommuter only	14.7%	11.0%	31.8%	21.2%
Supervisor only	38.3%	8.8%	30.7%	33.0%
Both	23.3%	12.5%	28.9%	26.9%

Quality of Work Life Changes

Aside from the quantitative effects of telecommuting, there is the issue of the socio-psychological effects of telecommuting. What is the impact of telecommuting on the telecommuters and their families? We do not develop direct evidence of the effects on the families, rather we asked the telecommuters about the impacts. We included a section in our evaluation questionnaires specifically oriented toward these impacts.¹⁹ Common factor analysis of the questionnaires allows us to break a number of the work/social impacts into 11 categories, as follows:

1. *General Work Life.* This relates to changes in the individual's relationships with his/her supervisor, self assessment of job skills, feelings of job responsibility, influence, versatility and scope.
2. *Personal Life.* This factor includes changes in quality of family relationships, discretionary time, feelings of control of one's life, ability to separate work and home life, success in self discipline, coordination of family and work time, and knowing when to quit work.
3. *Visibility.* Do telecommuters feel out of their supervisor's and co-workers' minds when they're out of sight? This factor includes changes in one's influence on organizational strategy, understanding of what others are doing, how well one's suggestions are received and self assessment of visibility in the organization.

¹⁹We developed this component (as well as the other components) of the questionnaire in studies of telecommuters and other information workers carried out over the past 16 years. It contains 50 questions about the extent and importance to the respondent of any impacts.



4. *Environmental Influences*. This includes changes in home office space, stress from environmental noise, ability to match work and biorhythms, and feelings of self empowerment.
5. *Belonging*. Do telecommuters feel themselves to be loners? Here we have changes in involvement in office social activities, amount of job-related feedback, career advancement, job stability and relationships with fellow workers.
6. *Creativity*. Changes in: creativity in one's work, the amount of flexibility in job performance and feelings of self empowerment, are in this factor.
7. *Stress Avoidance*. Changes in work related costs, ability to bypass physical handicaps and avoidance of office politics are grouped here.
8. *Liberation*. This factor includes changes in ability to concentrate on crucial tasks, the need to cope with traffic, and the ability to get more done.
9. *Apprehension*. Changes in uneasiness about equipment failure and feelings of guilt about "not really working" constitute this category.
10. *Interdependence*. This factor relates to changes in the quality of meetings with colleagues and dependence on others to help perform one's job.
11. *Continuity*. The final factor calibrates changes in freedom from interruptions.

Table 6: Work/Social Factor Changes

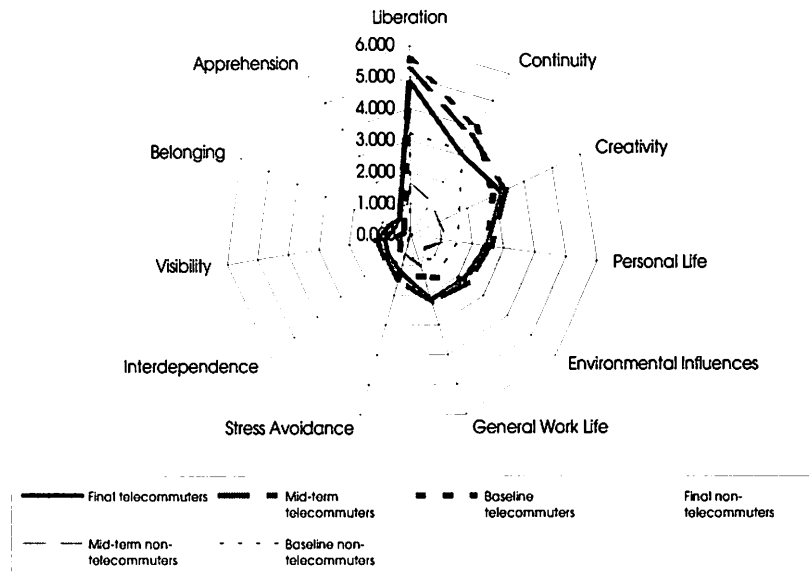
<i>Factor</i>	<i>Telecommuters</i>	<i>Non-Telecommuters</i>	<i>Difference (T - non-T)</i>
Liberation	4.9	1.6	3.2
Continuity	3.1	1.3	1.7
Creativity	3.2	1.3	1.9
Personal Life	2.5	1.0	1.5
Environmental Influences	2.2	0.6	1.6
General Work Life	2.2	1.0	1.1
Stress Avoidance	1.2	0.3	0.9
Interdependence	1.0	0.5	0.5
Visibility	0.9	0.4	0.5
Belonging	0.6	0.3	0.3
Apprehension	0.7	0.6	0.1

Note that the emphasis is on *changes* in these categories. We asked the participants what had changed *since* telecommuting began, whether or not they were telecommuters. We asked how much, if any, change there was and how important each issue was to them. We have developed composite values (amount of change multiplied



by importance to the participant) for these factors, as shown in Table 6. The scales for *amount* of change are from -2 to +2, with -2 signifying much worse, 0 meaning no change, and +2 signifying much better. Importance ranges from 0 (not important at all) to 4 (extremely important to the participant). Thus, the composite factor can range from -8 (i.e., -2 × 4) to +8 (i.e., +2 × 4).

Figure 2: A “Radar” View of the Quality of Life Changes



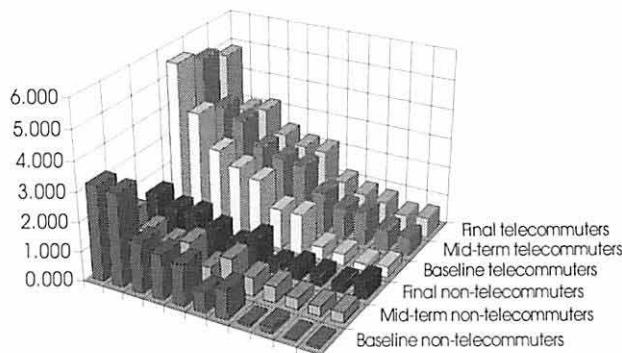
The surveys show clear differences between the telecommuter and non-telecommuter groups. There are three areas in which we might expect to see negative impacts from telecommuting: Visibility, Apprehension and Belonging. Yet, this group of telecommuters, on average, shows net positive changes for all three, although there are some individual negative responses.

Figures 2 and 3 show two different views of the elements of Table 6 as well as the comparable results from the mid-term and baseline surveys. Note that, with the exception of the liberation and continuity factors, both groups at mid-term appear to be more positive than they were during the baseline survey; then both groups tended to decline slightly from the mid-term to final surveys. In two of the key factors — continuity and creativity— the telecommuter group switched rankings between the mid-term and final surveys, while the non-telecommuters stayed about the same. This could arise from a possible increase in interruptions to the telecommuters as more people get used to contacting them while they are at home, coupled with a decrease in interruptions in the office as the on-site office population decreases. Interestingly, the telecommuters’ responses to the liberation and continuity factors declined



after the baseline measure, showing the effects of reality slightly modifying expectations.

Figure 3: Comparative Quality of Life Changes



In any case, the telecommuters show quality of life changes that are more positive in every respect than those of the non-telecommuters.

Energy Use

Direct Usage

Telecommuting *uses* more energy to the extent that it increases the use of telecommunications over what would occur without telecommuting. For example, if more phone calls are made by telecommuters than by non-telecommuters, or if the phone calls are over longer distances or last longer than would be the case otherwise, then there is a net increase in energy use proportional to the energy costs of the additional calls. Furthermore, if telecommuters work at home, they may use more energy — in lighting, heating and cooling — than they would if they were not at home. This is particularly true if no one would be at home otherwise (thus, the lights and furnace or air conditioner would be turned off or down).

Telecommuting *saves* energy to the extent that it reduces gasoline consumption or reduces building heating, ventilation, air conditioning and lighting in the offices no longer occupied by the telecommuters. The latter is the reverse of the increase in energy use produced by a home telecommuter.

Indirect Usage

There are indirect energy effects as well. For example, if telecommuting increases the use of computers, it also



increases the energy put into the computer industry. to the extent that telecommuting causes changes in the *form* of energy used, as from gas to electricity, or in the *efficiency* of energy use, there is an impact on energy resource demand.

As another example, if telecommuting reduces automobile use, then it also has a ripple effect on the amount of energy expended in automobile manufacturing and maintenance, highway construction and the information infrastructure supporting those sectors of the economy.

Results

It was not possible to directly measure the direct usage, or even to estimate the indirect energy usage. Further, because of the already high load of questionnaires and meetings requiring the telecommuters' time, we limited the energy assessment to indirect methods. Specifically, we estimated telecommunications, electrical and natural gas energy use by asking the participants to note their telephone and utility bills. Gasoline energy use was estimated by factoring an assumed average fuel mileage (24 miles per gallon of gasoline) for the participants' cars with their known commute distances and commuting patterns.

As the demographic data given earlier indicate, there is no statistically significant difference

between the telecommuters and the non-telecommuters in telephone or home utility use. The fundamental difference is in fuel use. The difference amounts to a net saving of 4018 kilowatt-hours per telecommuter-year at the 1992 average telecommuting rate of 1 day per week. For comparison, the 1988 average annual energy consumption per capita in the US. was about 31,700 kilowatt-hours.²⁰ *Therefore, the average City of Los Angeles telecommuter in 1992 was reducing his / her total energy use by about 13%.*

As the rate of telecommuting increases, the resulting energy saving can also be expected to increase. Further, although we did not calculate the indirect energy impacts, it appears plausible that any increases in telecommuting-related infrastructure use are more than compensated for by energy reductions in the transportation infrastructure.

The effect of telecommuting on air quality is directly the result of decreased automobile use. Automobile-produced air pollution is often characterized as consisting of two phases: the cold start and hot running phases. The term *cold start* refers to the fact that an internal combustion

Air Quality

²⁰The actual calculation is: 327 million Btu's per capita divided by 10,331 Btu's per kilowatt-hour equals 31,652 kilowatt-hours per capita.