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City Councilmember Mike Bonin
METRO Board of Directors
Planning & Program Committee Chair
City Hall Office
200 N. Spring Street #475
Los Angeles, CA 90012

Subject: Ten Fatal Flaws in the Union Station Master Plan
Final Plan dated September 17, 2014

Subject document:

http://media.metro.net/board/Items/2014/09_september/20140917p%26pitem28handout.pdf

Dear Councilmember Mike Bonin:

The Final Draft of the Union Station Master Plan was presented to the METRO Board during the September 17, 2014, Planning & Programming Committee Meeting.

During the presentation you requested, if there was any knowledge of fatal flaws, you would like to know. In answer to that request, here are ten fatal flaws of which you may not be aware.

Formerly, I was the High Speed Rail Planning Manager at METRO (2009-2011) and studied the existing infrastructure of Union Station. During the design and construction of the METRO system I was a track and alignment engineer for the Red, Blue and Green Lines. Prior to that experience, I worked on transit systems in Baltimore, Boston, and Washington DC.

During my Boston experience, I worked on the Back Bay Station, the only rail station in America most like Union Station with regards to the types of transit operations that are funneled through a small area: Light Rail, Commuter Rail, Amtrak, Acela High Speed Rail and freight trains, with a subway station located underneath.

From working as a rail yard designer on the East Coast and the West Coast, rail yards have become one of my areas of expertise.

Union Station is one big rail yard.

Track engineers have an expression for yard design: “like putting ten pounds of sugar into a five pound bag.”

In other words, with rail yard design, there’s not an inch to spare.

In the lessons learned category, experience showed that many design problems occur in the early stages of development when designers fail to look underneath the surface. With this in mind, I spent my two year tenure at Union Station studying the underground structures and found a honeycomb of entranceways, tunnels, utilities, auto ramps, offices, stairwells, escalators and elevators.

At Union Station there are more structures underground than above.

Also, by trade, I am a map maker and discovered there was no consolidated rail map for Los Angeles County. METRO had their own system map, Metrolink another, Amtrak a third, Santa Fe had their own set of maps and Union Pacific another. Some railroads shared corridors with Amtrak, some with Metrolink.

Working with the Long Range Planning group at METRO, the first consolidated rail map for Los Angeles County was developed. This map is currently used by METRO Executive Officer, Don Sepulveda, during his High Speed Rail presentations. For item 6 on the list, regarding raising of the tracks in Union Station, having a copy of the detail on the map of Union Station area will clarify the track problem along the Los Angeles River.

This map is also important for commuter information as there is a general lack of coordination in the transit and rail planning industry, which will effect the development of High Speed Rail at Union Station, for which the new Master Plan plays a big part.

There are problems within the new proposed Master Plan, but there are also solutions, especially with the movement of passengers through the underground facilities. These solutions are not always mine or new, and were developed after spending many hours in underground garages, investigating existing damage to structures, and speaking to multiple METRO departments on multiple topics. The Board and the public should be aware that there are more cost effective, organic (in the sense of growing out of the old), cheaper alternatives to the Master Plan and that I hope you will take this into consideration when planning for the future of our community.

TEN FATAL FLAWS IN THE UNION STATION MASTER PLAN

1.) Overhead Pedestrian Walkway directly above locomotives emitting diesel exhaust is a hazard to public health

Fatal Flaw: Amtrak and Metrolink locomotives continually emit diesel exhaust. From OSHA report: "(Persons) exposed to diesel exhaust face the risk of health effects ranging from irritation of the eyes and nose, headaches and nausea, to respiratory disease and lung cancer."

<https://www.osha.gov/SLTC/dieselexhaust/>

On a daily basis, the handrails and surfaces of the overhead walkway will be coated with diesel soot. Eliminate overhead walkways.

Solution: Provide a pedestrian bridge over Alameda Street, see item 8, and add two new underground passenger tunnels for circulation, see item 9.

2.) New development along Vignes Street should not be planned above remnants of coal gasification plant

Fatal Flaw: The soil under Union Station is contaminated from remnants of a coal gasification plant. A technical paper titled "(One) Gateway Center Water Treatment Plant, Los Angeles: Controlled Hydrogen Peroxide Treatment of Hydrogen Sulfide" was presented at the Fifth International Symposium of the Chemical Oxidation Association, held at Vanderbilt University in 1995.

*"The Gateway Center underground parking facility will provide space for the occupants of **six future office buildings** and Union Station, the central hub of the Los Angeles Metropolitan Transit Authority (MTA) in downtown Los Angeles. The first stage of the development was to construct a 40+ foot deep excavation for construction of an underground parking structure in which temporary (**approximately two years**) dewatering was required to lower water levels. The regional groundwater in the vicinity of the site is affected by hydrogen sulfide and dissolved petroleum/chlorinated hydrocarbons and requires extensive treatment before the groundwater can be discharged to the Los Angeles River. The suspected source of these chemicals is a nearby former coal gasification plant which operated from the **1890s until the 1950s.**"*

<http://www.h2o2.com/remediation/ex-situ-soil-and-groundwater-treatment.aspx?pid=96&name=Case-Study-Groundwater-Treatment-Hydrogen-Sulfide>

A copy of the full article is available through METRO's library via email request.

The recent Union Station Master Plan encourages development along Vignes Street which may not be economically feasible because of the soil contamination and the costs of the remedial actions required to decontaminate the soil.

During 2013, the lowest parking level at One Gateway, P-4, was closed while an

extensive clean-up operation was performed to remove the black ooze that was bubbling up from cracks in the concrete and pooling in significant quantities under One Gateway.

From METRO's Media Relations:

"Apparently there has been some cement cracking occurring on P-4 parking level and Ferrous Sulfite is coming up through the cracks. Safety had some studies done and deem it not harmful for people, but obvious....the stuff coming up through some cracks and joint areas of the cement is not good to have. General service started the work of filling in the cracks and then putting a sealer on the floor starting with P-4. They also plan to seal each level of the parking structure and re-stripe as well. The Ferrous Sulfite is only on P-4 level, not elsewhere.

"We suspect that due to old oil storage in the area of our building many years ago may have led to this....also we have a very high water table here due to our location next to the LA river. Metro's environmental safety folks are monitoring the issue and will monitor after work is completed to ensure the construction process works."

The garages under the proposed Vignes Street development underwent this decontamination in 2013. Rust colored leakage ran along the bottom of the columns on aisle PF-4. This is the center of the parking garage. The damage was at the base of the columns. The concrete slab under the columns is about four feet thick. Is this goo moving up through four feet of concrete?

In addition to the One Gateway garages, the soil under the old Denny's site was also contaminated. The same remedial action was taken: Denny's restaurant and parking lot were removed, soil decontamination dug a hole 40+ feet down, the soil was removed, the site refilled with clean soil, a new parking lot was added, and new Denny's was built that looked identical to the old one.

The Board should request METRO's Environmental Safety Group provide a geotechnical report on the contamination of the soil under the proposed development site before proceeding further with the Master Plan.

Fatal Flaw: Even if the environmental hazards can be addressed, the height of the buildings shown along Vignes Street will interfere with the LAPD helicopter landing pad, Hooper Heliport, located on the roof of the Piper Technical Center, the world's largest rooftop airport. Federal Aviation Administration (FAA) regulations governing helicopter landing clearances mandate that buildings may not obstruct the airspace. The helicopter landing space is in the shape of an invisible upside-down wedding cake; the higher the elevation, the wider the airspace in circumference. It appears the height of the buildings shown on the Master Plan interfere with this airspace and will have to be truncated.

Solution: The areas designated for new development along Vignes Street on the Master Plan may be suitable for parking garages that will be necessary for High Speed Rail to succeed.

3.) Building an underground HSR station beneath Vignes Street

Fatal Flaw: This proposal, using the Federal Railroad Administration's (FRA) own terminology for funding denial is a "Show Stopper," as the costs outweigh the benefits.

For reference, the length of a HSR Platform is 1400 feet. The height of the World Trade Center was 1365 feet.

http://en.wikipedia.org/wiki/File:World_Trade_Center_Building_Design_with_Floor_and_Elevator_Arrangement.svg

Therefore, the building of this HSR platform is nearly equivalent to building the World Trade Center on its side, underground. There is no building of this size in the Western United States, and this proposed HSR station will be mined in bedrock through soil of dubious noxious content!

Complicating the proposal is the existing Red Line subway. The bottom of the Red Line Station is deep, about 80 feet. The station is a shoe box-like structure and sits on top of solid bedrock. During construction in the 1990's, for economic reasons, to provide sufficient height for the station structure, engineers decided to raise the flooring of the Union Station passenger tunnel instead of mining into the bedrock. Today one can see the rise and descent of the flooring by observing the tiles along the side walls of the passenger tunnel between tracks 7 through 10. This is the roof of the Red Line Station pushing up into the passenger tunnel flooring.

This slightly bulging floor is an example of ten pounds of sugar in a five pound bag.

The HSR alignment presents big problems. Subway tunnels currently exist underground in the vicinity, about 40-60 feet deep. The El Monte busway rests on top of support columns. Also an impediment is the 101 Freeway, in a low profile. The proposed HSR tunnels will be built under the bottom of the El Monte busway and the 101 Freeway and the subway tunnels.

According to the Master Plan, the subway tunnels and the HSR tunnels criss cross each other under the 101 Freeway, one set of tunnels below the other.

This is a Fatal Flaw. This isn't going to work. You don't want to mess with this bag of sugar.

And if that isn't sufficient information to stop the project, here's another Fatal Flaw: the HSR station platform will be about 100-120 feet underground mined into solid bedrock.

If the station platform is 120 feet deep, that translates to about eight stories down. This is a structure the size of the World Trade Center. The costs are astronomical. This is a "Show Stopper" and the proposal should be taken off the table immediately.

The only viable solution for HSR to fit conveniently at Union Station is to move the Gold Line over into the old baggage handling area, a distance of about 150 feet. More on that in item 4.

But moving the Gold Line at Union Station to accommodate HSR has not been presented to the METRO Board or to the public.

METRO received \$115 million from HSR to address transit issues at Union Station, but the infusion of HSR money was put into the Regional Connector Project. That is the reason moving the Gold Line at Union Station has not been discussed with the public or the METRO Board.

A structure as big as the World Trade Center is not needed at Union Station. Move the Gold Line. Use the HSR money for what it was intended, to address transit issues caused by building HSR at Union Station.

4.) Building the new busway behind Union Station violates previously signed Railroad Agreements

Fatal Flaw: The busway is planned for an area that was designated for rail traffic. Railroad Agreements dating back to the the 1930's assign rights to each successive tenant at Union Station to maintain this area for rail traffic only. These agreements were written for the best interest in regards to rail expansion. Previously, rail tracks were located in this area and were used for Post Office business, such as letters and packages. These tracks were removed during the construction of the Red Line and is currently use as a parking lot and an area for Amtrak baggage handling.

According to the Railroad Agreements, it would be illegal to build a busway at this location. METRO Board should comply with the Railroad Agreements signed by METRO Executives in the 1990's and retain this area for rail transit expansion only. Purchasing the property does not give METRO the right to waive these previous agreements as this is a separate legal matter that over-rides ownership.

Currently, METRO is considering converting the San Fernando Valley Orange Line busway back into a rail line. One hundred and twenty years ago this busway was a rail transit line. The rail line was later discontinued. Then, in the 1990's, METRO planned for the construction of a light rail line in the Valley. But this was deemed too expensive, and the busway was built. The current success of the busway has generated discussions to change the busway back into to a light rail line. But doing so today will be extremely expensive and disruptive to the current patronage.

The Patsauoras Plaza busway is successful and needs to expand, but cannot in the current location; the Master Plan proposes building a new facility on the Alameda side, behind Union Station in the old baggage handling area.

But putting the busway into the old rail right-of-way violates the terms of the Railroad

Agreements and removes the option of moving the Gold Line to make room for High Speed Rail.

This is one of those problems of putting ten pounds of sugar into a five pound bag.

There is no other solution for High Speed Rail. The new busway location will block expansion of the railyard. Should METRO willingly disregard the previous Railroad Agreements? This is a legal issue and the Board should investigate this claim.

Plus, there are other problems with the current design of the Gold Line Platform. When the Gold Line Foothill Extension to Azuza opens in 2015, additional passengers will arrive and depart at Union Station. At that time, there will be insufficient room on the Gold Line platform for safe passenger circulation. The current platform is too small. This is a Fire-Life Safety issue.

There needs to be another set of stairs at the platform. The single stairway is overcrowded during rush hours. Passengers walking up the steps when the majority of people are going down are confronted with a sudden crush of commuters. Bicycle patrons must hoist their bikes overhead to navigate the crowds. The platform should be wider.

A pair of up and down escalators should be added.

But there is no room for escalators at the current location of the Gold Line Platform at Union Station. Nor is there room to widen the platform.

Trackway expansion in the Union Station platform area is limited to previous trackway locations. Finding another location for the busway is less difficult than finding another location for a rail transit platform. Rail lines are governed by overhead clearances regulated by the California Public Utilities Commission (CPUC). These strict regulations for overhead clearances are far greater than the clearances for buses (CPUC General Order 95). At present, these clearances at Union Station are intact. Rail expansion would be simplified.

Solution: Relocate the Gold Line platform by moving the platform 150 feet closer to Union Station into the old baggage handling area which would create sufficient room within the train yard for the longer HSR platforms; there would be no violations to the Railroad Agreements or the Proposition 1A ruling for use of HSR funding.

For further clarification on moving the Gold Line, see attached comment to the California High Speed Rail (CAHSR) Authority dated August 25, 2014.

Solution: Build the busway in the area now occupied by the Mosaic apartment building. Instead of building the grand staircase upwards, build the staircase downwards from the existing level to the Red Line Mezzanine. Patrons could exit the buses and transfer directly to the Red Line without entering Union Station. Building an entrance at

this location was discussed in the early architectural planning efforts of the subway (1983), but discarded as this location was outside of the Union Station main building.

Currently there are emergency steps leading downwards to the Red Line Mezzanine. The steps are located in the current Amtrak bus waiting depot area, in the sidewalk near the stairway. There are metal doors in the pavement marked “emergency only.”

The interior location of the emergency exit is located on the Red Line Mezzanine level. Walking through this emergency passageway will help envision the possibilities for the proposed entrance. The emergency stairs will no longer be needed if a new entrance is built.

The new entrance would attract additional patronage to the buses and the Red Line, as passengers could swiftly transfer from one conveyance to the other without entering Union Station.

5.) New high rise development around Union Station, Alameda side, violates the previously signed Railroad Agreements

Fatal Flaw: It is illegal to erect new buildings into the old track right-of way. See previous discussion.

The Mosaic Apartments were built by Catellus Development Corporation with full knowledge that the back of the building extended into the track right-of-way and that this structure was a violation of the existing Railroad Agreements. METRO did not dispute this violation, as there was great interest in the economic feasibility of the project. But it would have been within METRO’s rights to halt the construction beyond the right-of-way line.

During the purchase of Union Station, METRO’s legal and real estate departments were notified of this breach and were given documentation to support this statement during one of the regular coordination meetings.

Solution: New structures built near the tracks may overhang the trackway but the CPUC clearances must be maintained. Support columns for these structures may not be built in the trackway area unless they are coordinated with the proposed track expansion.

6.) Run-through tracks over the 101 Freeway raises track levels five feet at Union Station means rebuilding ten bridges over the LA River

Fatal Flaw: Raising the tracks at Union Station five feet will impact the track levels from the station platform area to the the track junction along the Los Angeles River.

The track levels at Union Station have remained the same for eighty years, to the thickness of a dime. The entire trackway was designed, built and maintained using standard engineering track practices still in use today. Each station and rail yard from

Los Angeles to Chicago was designed in a similar fashion, in a swale, or spoon shape, to prevent trains from rolling out to the mainline. When profile grades are over one percent, trains start to roll; therefore the industry refers to all track vehicles as rolling stock.

If vehicles roll onto the mainline, they become an extreme safety hazard. For this reason, strict guidelines are adhered to for profile grade elevations in train stations across the country, to the thickness of a dime. To prevent vehicles from unintentionally rolling, the entire track complex, from the passenger platforms to the LA River, must remain in a swale, or spoon shape. Raising the tracks five feet at Union Station will demand that the entire track complex to the LA River also be raised five feet.

The track interchange at the LA River is unique. There are few track crossings within the United States that have this magnitude of complexity and history. Freight trains run north and south, from Long Beach to Sacramento and beyond. Amtrak trains run to Chicago and New Orleans, east to west. Amtrak trains exit the station area and then turn north or south to San Diego or San Francisco and Seattle. Metrolink trains cross in multiple directions, to Riverside, San Bernardino, Ventura and Orange County. These routes will not be eliminated with building the run-through tracks. But raising the track profile five feet in the station area will require raising the track profile here five feet as well. This would seriously impact the surrounding bridge clearances. The CPUC codes for clearances, mentioned in item 4, apply to the underside of all bridges. Ten bridges will have to be reconstructed over the LA River to provide for this extra clearance of five feet: Broadway, Spring, Main Street, Cesar Chavez Avenue, El Monte Busway, the newly renovated First Street bridge, two Amtrak and Metrolink rail bridges and the Gold Line bridge.

To suggest that the grade elevation for tracks inside Union Station can be higher than grade elevations along the LA River could be regarded as an act of willful misconduct, as this disregards standard track design practices and disregards public safety.

Solution 1: It may be more cost effective to lower the 101 Freeway than raise the tracks. Lowering the 101 freeway through downtown was completed decades ago. But the project stopped just short of Union Station due to opposition from adjacent stakeholders, primarily the property owner of the strip club across the freeway from Union Station.

Caltrans construction drawings showing a lower profile along the 101 Freeway should be available in Caltrans archives. A lower profile along the freeway would eliminate the need of raising the tracks in Union Station when building the run-through tracks. The METRO Board should request that Caltrans investigate and substantiate this claim and compare costs of lowering the freeway (and finishing the job) to those of raising the rail yard five feet, which will require replacing about ten bridges over the LA River.

Solution 2: Conduct further studies of bridge designs for the run-through tracks to find a more appropriate solution.

7.) New landscaping at Union Station will cause corrosion and potential structural failure to existing structures

Fatal Flaw: Landscaping requires fertilizer. Fertilizer mixes with the water. Excess water leaks. Containers that are buried, eventually crack. Water leaks into basements, parking lots, tunnels. The chemically enhanced water seeks electrical lines encased in concrete such as lighting conduits. Upon contact with the water, the electrical lines react to the chemicals in the fertilizer. The concrete that surrounds electrical lines begins to spall, corrode and dis-color.

Note that the landscaping between One Gateway and the Amtrak platform area was recently removed and replaced. The above problem occurred at this location. The landscaping containers buried inside the masonry walls cracked and the fertilizer rich water seeped down the steps and into the roof of Cesar Chavez underpass. During the rainy season of 2008-2009, over one hundred square feet of concrete collapsed in segments onto the roadway. Repairs to the roof of Cesar Chavez were not completed until 2013.

Landscaping is not recommended near train yards. Numerous reports have been professionally written on the topic and are available in the METRO library.

Solution: Large water fountains would be more appropriate. No fertilizer necessary.

8.) Alameda Street road diet, Los Angeles Street closure not permissible for emergency reasons. Planting of large trees not permissible because of large underground storm drain.

Fatal Flaw: Alameda Street is currently overburdened with rush hour traffic. Emergency teams, such as fire and police use this corridor and it is highly unlikely they would allow the road diet. From the lessons learned category, Fire-Life safety holds the trump card when it comes to enforcing safety rules and will defeat this design. Emergency Departments are not usually part of the preliminary review process. But because of the magnitude of this proposal, verifying this statement with the City Departments and with METRO Fire-Life Safety is recommended.

Closing Los Angeles Street will also be under the same scrutiny for the same reasons.

Solution: If you can't go across Alameda, go over it. Build a pedestrian bridge. Build a wide bridge that carries pedestrians from Union Station and continues directly towards Plaza Park. Design the bridge should be a memorable, historic attraction.

It may not be possible to close both lanes of Los Angeles Street. But it may be possible to close one lane and leave the other lane open for emergency and permitted vehicles only. This could have a beneficial impact. Festival merchants for Olvera Street could have better access to the Plaza with the permit only system, same with film crews. And

the closed lane could become the exit for the new pedestrian bridge.

Alameda Street would remain the current width.

Fatal Flaw: Planting trees on Alameda Street. Missing from the cross section in the Master Plan is a large storm drain (eight or ten foot diameter) that runs underneath the east-side of Alameda Street. This storm drain was constructed during the same era as Union Station and was built to protect Olvera Street and Union Station from flooding.

Tree roots cause damage sidewalks. Tree roots equally damage underground storm drains. It is highly unlikely that Los Angeles city engineers will permit the planting of any trees on the east-side of Alameda.

Solution: No trees on the east-side of Alameda.

9.) New Passenger Mezzanine height not feasible because it will cause the reconstruction of ten bridges along the LA River

Fatal Flaw: The new Passenger Mezzanine was praised at the meeting because the roof would be five feet higher. But this may not be possible because of reasons cited in item number 6 regarding the run-through tracks. Raising the tracks five feet in Union Station is not possible without serious consequences to ten bridge structures that cross the LA River. And raising the height of the existing passageway may not be feasible or necessary.

The original east-west passenger tunnel was designed to minimize commuter travel time. Exit lines were clearly visible. The new proposal replaces the original commuter flow within a mezzanine of cross directional travel, sunken pits, and a maze of columns. This will lead to confusion and accidents. No longer will commuters be able to adhere to a natural right hand rule regarding incoming and outgoing movement. Commuters will cross each other in every direction, travelers will intersect, each pulling suitcases, who goes first could be embarrassing or hostile, parents pushing baby carriages will move slower, elderly one-time visitors will stop and try to determine which way to go, and in every direction, columns will block straight site lines to platform entrances and station exits. People will walk around a column and trip over a suitcase.

Sunken pits are places where cell phone gazing commuters could fall and create liabilities. Sunken pits seem to be neglected in other areas of the city where they were installed years ago. These pits ignore needs of handicap patrons.

In addition, maintaining landscaping in the sunken pits is a maintenance hazard for the reasons cited in item 7 regarding new landscaping. The excess water from these pits will eventually leak into the Red Line Box structure, if not in this generation, the next. The subway contains embedded electrical systems. The top of the station box is straddled just between these two landscaped pits, the mezzanine flooring just a thin veneer over the humpback top of the box.

Solution: Add two additional passenger tunnels, one parallel to the south and one parallel to the north of the current walkway.

On the south side, extend a new tunnel from the end of the Harvey Restaurant walkway which has the same distinct architectural elements as Union Station. There is a grand portico entrance near Alameda which originally attracted celebrities to the restaurant. This walkway passes between two well-maintained gardens, both underutilized. The Metropolitan Water Department (MWD) garden has patio seating, shade trees, a beautiful fountain and a historical plaque marking the old boundary of Chinatown. This garden is open to the public.

The Harvey Restaurant walkway could continue straight forward under the tracks, maybe higher and wider than the existing passenger tunnel without raising the tracks. Currently there are thick beams in the roof of the existing passenger tunnel, designed to hold up the weight of steam locomotives, which are four times heavier than the currently used diesel engines. Therefore the beams in the original passenger tunnel are larger than necessary to do the job. The new roof beams could be structurally smaller, providing more head room. Construction-wise, it would be easier to build a new tunnel than to take out the roof beams of the old one.

There are currently no elevators to the Amtrak and Metrolink platforms at Union Station. This tunnel could have elevators and be designated for handicap patrons. This tunnel also allows for easier boarding of Metrolink trains as passengers would load more directly at the south end of the station platforms.

One goal set forth in the first draft of the Union Station Master Plan was to increase the number of passengers using the Red Line and Metrolink. Some of the elevators in this tunnel could connect Metrolink platforms directly with the Red Line mezzanine, straight downwards.

This infrastructure improvement could attract a new crowd to use the rail system, especially for those traveling to the Staples Center for sports and entertainment.

This Fred Harvey passenger tunnel has not been discussed in the Master Plan and is not identified on the drawings. It is primarily used only by El Monte busway commuters, who enter and exit Union Station across the MWD garden patio.

The second tunnel could be built on the north side of the existing passenger tunnel, beginning inside the Red Line entranceway, in the atrium room behind Starbucks.

The tunnel would exit behind the existing METRO information booth, into the parking garage. A large cinder block wall currently exist at the proposed tunnel portal. This area also contains an underutilized loading dock.

The parking area near the new passenger tunnel could become an underground drop off area for a special kind of “kiss and ride.”

The area in front of this proposed tunnel portal (100' x 100') opens to the sky. This could be the right location for a bicycle parking structure, spiraling upwards. The loading dock, which is currently underutilized, could become a sports bar, in the sense of providing bicyclists the kind of nourishment they prefer, energy drinks and high protein snacks.

This tunnel could be the only tunnel where bicyclists are allowed, limiting bike traffic to one corridor.

10.) Outdoor Seating, grand staircases and new plazas, too much sun, not enough shade

Fatal Flaw: Too much sun. No shade. Many Los Angeles residents prefer to stay in the shade. The City Fathers designed the downtown streets to be at an angle, slightly off from north to south, so there would always be shade at lunchtime.

Where can passengers go inside the existing Union Station and enjoy meeting with friends, saying good-bye to loved ones, waiting for an hour to catch a train?

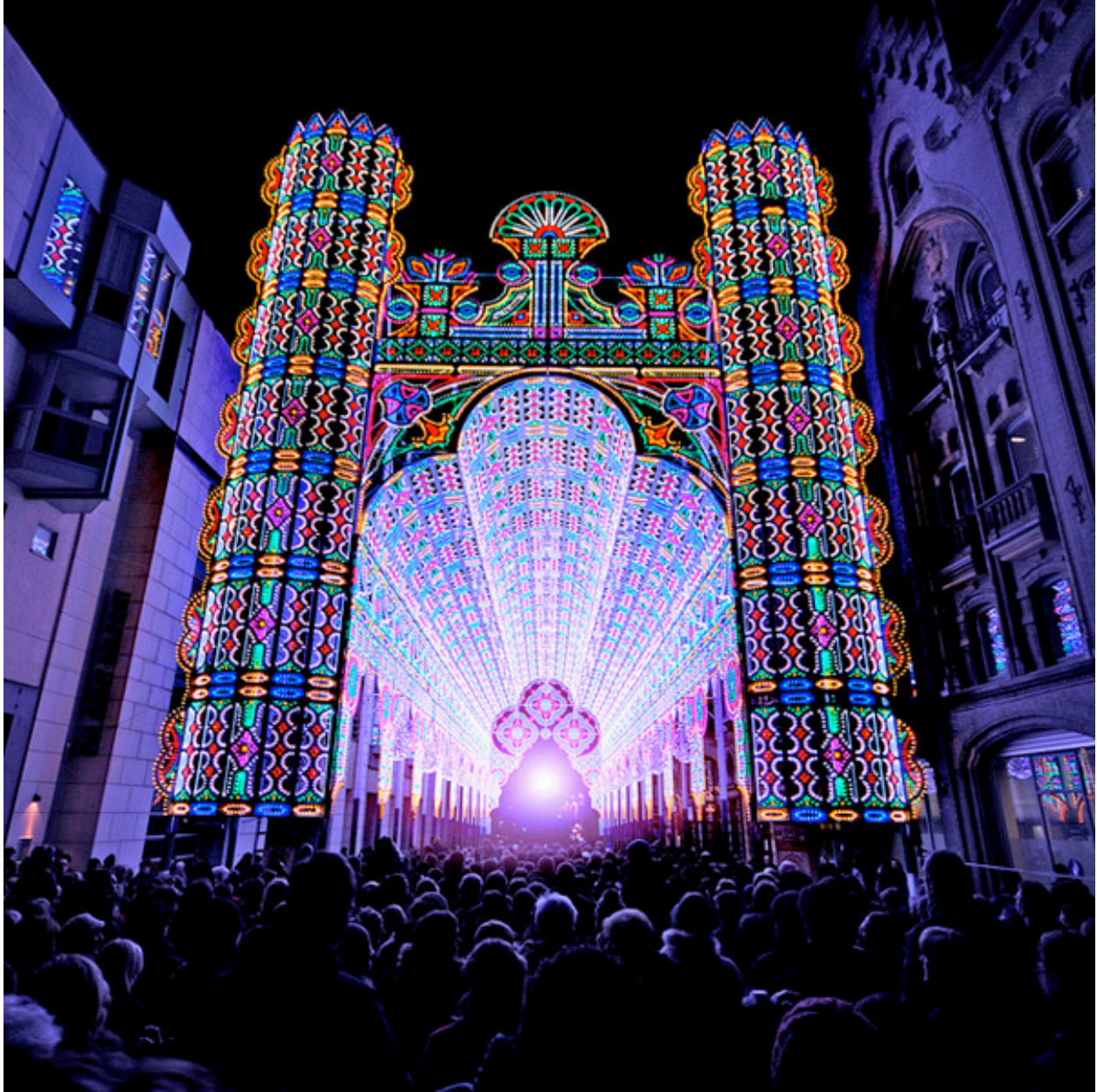
The old ticketing area in Union Station is closed to passengers. What use could it serve?

Night-time is when many Los Angeles residents go out for entertainment. Where's the night life attractions in the Master Plan? What could increase patronage through Union Station at night? Not a bar, not a club, maybe just a cup of coffee in a new setting?

Solution: Here are two suggestions from Europe, one for day and one for night, both very cost effective:



An interior garden in the Madrid Train Station



LED lighting demonstration, Cathedral of Lights, Ghent, Belgium, 2012

Thank you for your attention to this matter.

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