

Service Equity Analysis for June 2023 Service Changes

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Background

Marin Transit is proposing a number of service changes to go into effect in June 2023. These service changes have been proposed to help keep fixed route bus service reliable in Marin County. Starting in 2021, as the COVID-19 vaccines came out and the economy began reopening, many factors have emerged (or returned) that are impacting our ability to deliver reliable service in the current environment. These include growing traffic congestion, driver and staffing shortages, and lack of a District-owned operations and maintenance facility.

Staff have been working collaboratively with our contractors and identified actions that can be taken directly by the District to address these challenges. These actions include: (1) adjusting service, routing, and schedules to better accommodate driver needs and the impacts of traffic, (2) working on contract amendments to increase driver/staff pay, (3) continuing to improve District-owned facilities, (4) continuing to pursue a dedicated operations and maintenance facility, and (5) exploring contracting options to sustain service beyond June 2023. This report evaluates the equity impact of the proposed service changes associated with the first item on this list.

The primary goal of the June service change proposal is to increase the reliability of service for riders while minimizing the overall impacts on existing rider patterns. The following factors were evaluated and considered in developing the proposal:

- 1. **Traffic.** Congestion related to increasing traffic volumes continue to impact transit's ability to efficiently operate on local roads and highways in Marin. As traffic volumes have returned, and in some cases exceeded, pre-pandemic levels, congestion has returned to many areas of the county. This growth in congestion, coupled with a lack of investment in transit priority measures, has forced staff to revisit transit runtime globally to improve on-time performance issues.
- 2. **Driver Shortages and Needs.** Driver shortages and driver workplace conditions, specifically while on route, were both taken into consideration during the development of the service changes. While the total service change is expected to marginally decrease service (-2.8%), the new packaging of the service allows for an estimated 8% decrease in the number of vehicles and drivers needed to support the service. This is done though a more efficient allocation of the service and the development of more full-time shifts. This reduction eases the current pressures on hiring and drivers working overtime. As it relates to workplace conditions, the new routing achieves longer layovers and layovers are at locations closer to supportive driver facilities including restrooms. The added layover time not only improves driver conditions, but also provides padding in the schedule to increase on-time performance.



3. **Regional Transit Changes.** While many changes have been made during, and immediately following the pandemic, perhaps the most significant change in Marin County is the reduction of regional transit services. Approximately half of all regional bus service was cut during the pandemic and is still not restored. Many local transit trips are made on the regional services due to coordinated schedules between the local services and free transfers offered between the routes in Marin County. While some changes, like the doubling of service on Route 71, were made during the pandemic to target regional losses, other changes are still needed to better support local travel in Marin and better connect to the remaining regional bus and ferry services.

Proposed Changes to Marin Transit Fixed-Route Services

The service change proposal for June 2023 is the most widespread change in terms of the number of routes impacted and the number of service changes since June of 2016. While the District implemented many changes to service during the pandemic, some were temporary and most focused on one or two specific routes.

In total, half of the District's 24 fixed route services are included in the proposed service change package. Table 1 below shows if the proposal includes a change to the route alignment, a change in service levels (frequency or span of service), and if the route is proposed to be discontinued altogether. Replacement services are shown for any of the discontinued routes. Attachment A to the Board letter provides a more comprehensive description of the exact changes proposed for each route, including graphics showing the alignment adjustments.



Route	Alignment Change	Service Level Change (frequency or span of service)	Cancel / Discontinue	Replacement Service
22	(-)	(-)		
23	(+)	(+)		
23x			Х	23
29	(+/-)	(+/-)		
35	(-)			
49	(+)			
71		(+)		
219	(-)	(-)		
251			Х	49, 257
257	(+)	(+)		
645			Х	35
651			Х	49, 257

Table 1: Service Proposal Summary (by Route)

Note: (+) indicates increase, (-) indicates decrease, (+/-) indicates increase in some areas and decrease in other areas.

The District estimates that the cumulative change in fixed route service levels, as measured in revenue hours, will only decline by 2.1%, or approximately 3,900 fewer annual revenue hours.

Service Equity Analysis Overview

To understand the impacts of the proposed changes, staff analyzed the service changes through different lenses. This was, in part to satisfy FTA requirements under Title VI as described below. However, the report includes additional information to help the Board and public understand the impacts and benefits of the proposed changes. In addition to the required Title VI analysis, a Route Level Analysis and a Neighborhood Level Analysis were prepared to illustrate the impacts of the proposed changes on individual routes and neighborhoods, and to describe how individual riders' experiences may change under the proposed service plan.



Title VI Requirements

FTA Requirements

Whenever a fixed route service provider¹ enacts a Major Service Change, the Federal Transit Administration (FTA) requires a Service Equity Analysis be conducted to ensure that the proposed changes do not have a Disparate Impact on minority populations or a Disproportionate Burden on low-income populations. This is in accordance with Title VI of the Civil Rights Act of 1964, which prohibits discrimination on the basis of race, color, or national origin, as well as Executive Order 12898, which adds the requirement to check for a Disproportionate Burden on low-income populations. This report complies with FTA requirements for data analysis as defined in FTA Circular 4702.1B, and also includes a description of the public outreach conducted in compliance with FTA requirements and the Marin County Transit District Public Participation Plan (see Attachment B to the Board report).

Marin Transit's Title VI Program

The Marin County Transit District Title VI Program, updated in June 2020, defines the District's thresholds for what is considered a Major Service Change and what is considered a Disparate Impact or a Disproportionate Burden. It also defines the District's Public Participation Plan. These policies are summarized here; the full Title VI program, with greater detail on these requirements, can be found on the District's website: https://marintransit.org/titlevi.

Major Service Change

With some exceptions, Marin Transit defines a Major Service Change as one of four criteria:

- 1. The addition of a new route
- 2. New service on streets not previously used by any route
- 3. An aggregate change of 30 percent or more of the revenue hours for a particular route
- 4. Changing 40 percent or more of a route's path

Note that the above list is a summary and does not include all details of the Major Service Change policy. See the Title VI program (linked above) for the complete policy.

Criteria 3 and 4, as listed above, apply to this service change due to the proposed changes on routes 35, 251, and 257. As the service change proposal was crafted together with replacement service for some routes in mind on other routes, the Title VI Service Equity Analysis examines

¹ Applies to service providers running more than 50 peak hour buses in urbanized areas with more than 200,000 people.



the service change proposal wholistically rather than only examining the routes with changes that qualify as a Major Service Change.

Disparate Impact and Disproportionate Burden

The FTA defines Disparate Impact as a situation where minority populations bear a greater impact associated with a service change than would be expected based on their underlying share of the service population. For example, if minority populations make up 30% of the service population, but analysis indicates that they will bear 60% of the impact associated with a service change, then a Disparate Impact may occur. Similarly, a Disproportionate Burden is when the same occurs for low-income populations.

No service change can ever perfectly spread its impacts evenly across the population. As such, the FTA requires fixed route transit providers adopt a threshold over which the difference in impact on minority or low-income populations is considered disparate or disproportionate, respectively. Marin Transit's Disparate Impact and Disproportionate Burden policy defines this threshold as 20 percent for both populations. In other words, if minority populations make up 30 percent of the service population, then 50 percent of the impacts being on minority populations is the point at which the impact would be considered disparate. The same is true for low-income populations.

For more details on this policy, see the District's Title VI program (linked above).

Public Participation

The Marin Transit's Public Participation Plan provides a framework of options and strategies to guide a customized, systematic, and strategic approach to public participation. For Major Service Changes, the only set requirements are that the Board of Directors will hold a public hearing, that translation services be available to the public upon request, and that written comment in advance be available to the public. However, the plan also provides an extensive suite of other public participation strategies that the agency may use as appropriate. See the District's Title VI program (linked above) for more details.

In accordance with the District's Public Participation Plan, a public hearing will be held at the Board of Directors meeting on Monday, March 6th, 2023, at 10:00 am. Spanish translation will be provided; translation services for other languages will be available to the public if requests are received at least 72 hours prior to the hearing, and written comment received in advance of the hearing will be forwarded to the Board of Directors for consideration. In addition, Marin Transit has performed extensive public outreach with community groups, at bus stops, and on-board buses in service.

Attachment B to this Board letter documents all public participation activities the District engaged in to solicit feedback on the proposed service changes.



Title VI Service Equity Analysis

The general approach to conducting the data analysis for this Service Equity Analysis is:

- 1. Segment level:
 - a. Separate each instance of service increase or decrease in service into individual segments
 - b. Quantify the change in service hours associated with each segment
 - c. Determine the service area associated with each segment
 - d. Sum the total population, minority population, and low-income population in each service area
 - e. Calculate the percent of each segment's impact that will fall on minority and low-income populations
- 2. Systemwide:
 - a. Sum the total service increase and the total service decrease that will fall on minority and low-income populations
 - b. Calculate the percent burden of the total service increase and the total service decrease that will fall on minority and low-income populations, and compare this to the demographics of the underlying systemwide service population

Segment Level Analysis

Table 2 shows the detailed segment results step 1 above. The service area for each individual component is defined as a ¼-mile radius from each bus stop affected by the component. Any census block group touching this ¼-mile radius is considered to be part of the service area. The low-income population is defined as individuals earning below 200% of the poverty line, in line with the regional definition associated with the Clipper START program.

Note that service hours shown in the table closely align, but do not perfectly match up with, the change in revenue hours described above. This is because revenue hours incorporate a portion of layover times, and are affected by blocking changes that do not affect time the buses spend in service.

Minority

Low-Income

Change in



Service Change Description	Increase/ Decrease	Annual Service Hours	Percent of Service Area Population	Percent of Service Area Population
The 22 will no longer serve Strawberry in the Northbound direction	Decrease	-417	27%	12%
The 22 will cancel late night weekday service	Decrease	-1,288	26%	15%
The 23 will no longer offer express trips	all old		in service hours: vill get rolled into	o the 23.
All 23 trips go to Manor	Increase	+839	17%	17%
The 29 will no longer serve the Canal	Decrease	-412	65%	38%
The 29 will no longer serve College of Marin	Decrease	-374	21%	14%
The 29 will now serve Larkspur and Corte Madera	Increase	+1,071	26%	13%
The 35 will no longer go to Novato	Decrease	-5,282	41%	19%
The 35 will now serve Nova Albion/Las Gallinas	Increase	+913	34%	16%
The 49 will no longer serve Redwood Blvd	Decrease	-1,104	35%	15%
The 49 will now serve San Marin	Increase	+4,852	31%	15%
The 71 will increase midday frequency of service	Increase	+2,346	38%	19%
The 219 will decrease in frequency and no longer serve the Tiburon Hills	Decrease	-1,410	23%	10%
Discontinue the 251	Decrease	-9,509	39%	19%
The 257 will no longer serve Hamilton, midday	Decrease	-587	45%	19%
Extend the 257 up to Downtown Novato and add frequency along this corridor	Increase	+6,186	39%	20%
Discontinue the 645	Decrease	-689	54%	29%
Discontinue the 651	Decrease	-622	39%	20%

Table 2: Individual Components of the Proposed Service Change and Associated Data

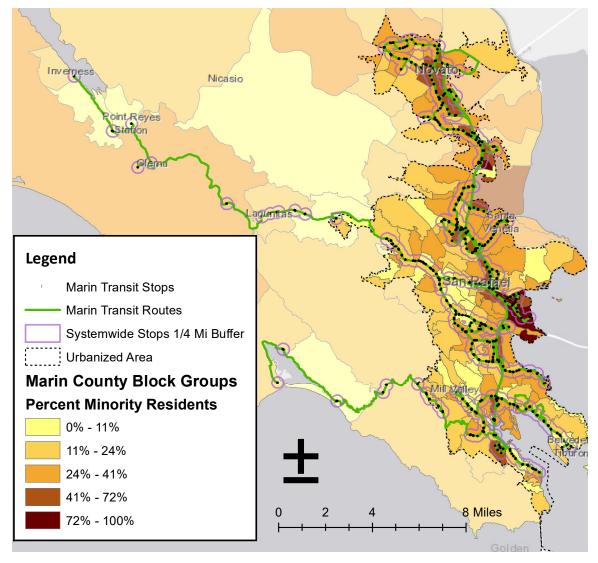
Source (demographic data): American Community Survey 2021 5-Year Samples, Tables B03002 and C17002.

Cumulative Systemwide Analysis

The cumulative systemwide analysis forms the basis for concluding whether the proposed service changes will constitute a Disparate Impact or Disproportionate Burden.



The baseline systemwide demographics were calculated using the same methodology as the service area demographics above, using demographic information for all block groups within a ¼-mile radius of any Marin Transit bus stop. Figure 1 below shows the systemwide buffer used to calculate these demographics, with the percentage of residents belonging to minority groups shown underneath. Figure 2 shows the same with low-income residents. The final step of the Title VI analysis compares the service changes to these two numbers. The systemwide baseline is 31 percent minority residents and 16 percent low-income residents.





Source (demographic data): American Community Survey 2021 5-Year Sample, Table B03002.



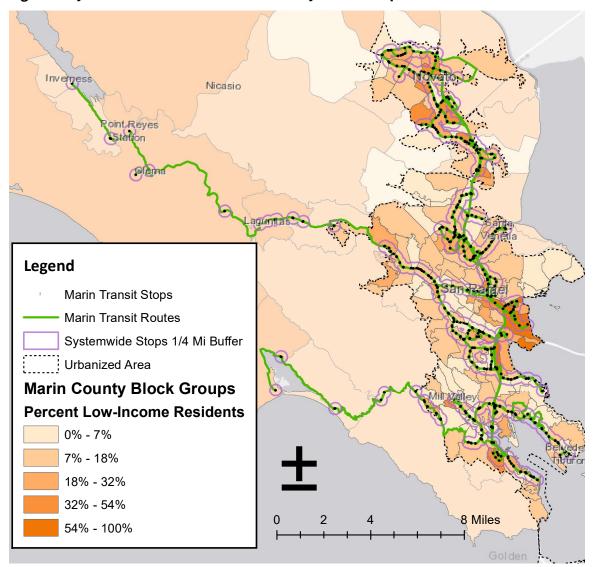


Figure 2: Systemwide Low-Income Residents by Block Group

Source (demographic data): American Community Survey 2021 5-Year Sample, Table C17002.

The systemwide baseline analysis does not take into account level of service in each neighborhood. The District's fixed route service is concentrated in predominantly minority and low-income communities such as the Canal and Marin City, because this is where the highest ridership and demand for bus service is located. In the Canal, for example, bus service is offered every 15 minutes during peak periods on just Route 35, and between Routes 23 and 36, total service in the neighborhood is even higher most of the day. Meanwhile, in more rural areas such as Point Reyes and Bolinas, there can be an hour or more between buses. Since this



is not taken into account in the systemwide analysis, the baseline demographics likely underestimate the share of baseline service offered to minority and low-income populations.

Table 3 shows the results of steps 6-7 above. The baseline systemwide demographics are included for comparison.

	Total Hours	Minority Share (hours)	Low-Income Share (hours)	Percent Minority Share	Percent Low-Income Share
Cumulative Service Increase	16,207	5,551	2,862	34%	18%
Cumulative Service Decrease	22,953	8,740	4,226	38%	18%
Baseline Systemwide Demographics				31%	16%

Table 3: Cumulative Assessment of Proposed Service Changes

Cummulative Service Increase

Figure 3 below shows the ¼-mile stop buffers for all of the increased service, systemwide, in the proposed service changes. This includes the proposed service increases on Routes 23, 29, 35, 49, 71 and 257.

As shown in Table 3, the minority share of the service increase will be 34 percent, compared to comprising 31 percent of the underlying service population. This is a difference of three percent, which is below the 20 percent threshold and does not constitute a Disparate Impact.

Similarly, the low-income share of the service increase will be 18 percent, compared to comprising 16 percent of the underlying service population. This is a difference of two percent, which is below the 20 percent threshold and does not constitute a Disproportionate Burden.



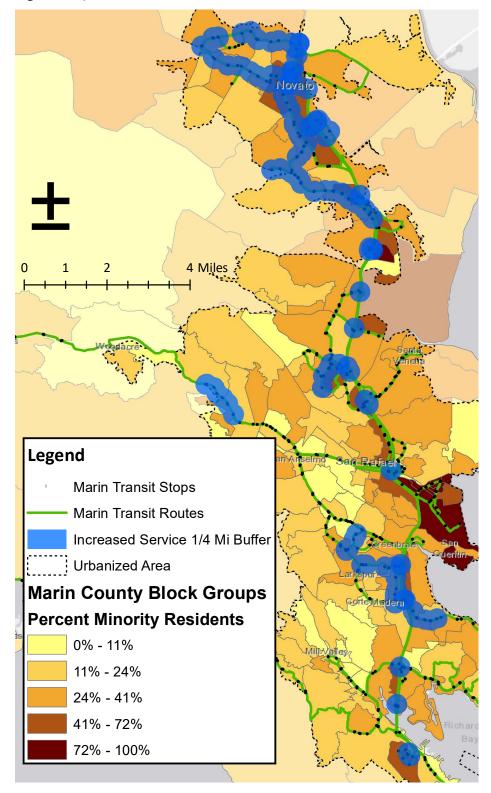


Figure 3: Systemwide Service Increases



Cummulative Service Decrease

Figure 4 below shows the ¼-mile stop buffers for all of the decreased service, systemwide, in the proposed service changes. This includes the proposed service decreases on Routes 22, 29, 35, 49, 219, 251, 257, 645, and 651.

As shown in Table 3, the minority share of the service decrease will be 38 percent, compared to comprising 31 percent of the underlying service population. This is a difference of seven percent, which is below the 20 percent threshold and does not constitute a Disparate Impact.

Similarly, the low-income share of the service decrease will be 18 percent, compared to comprising 16 percent of the underlying service population. This is a difference of two percent, which is below the 20 percent threshold and does not constitute a Disproportionate Burden.



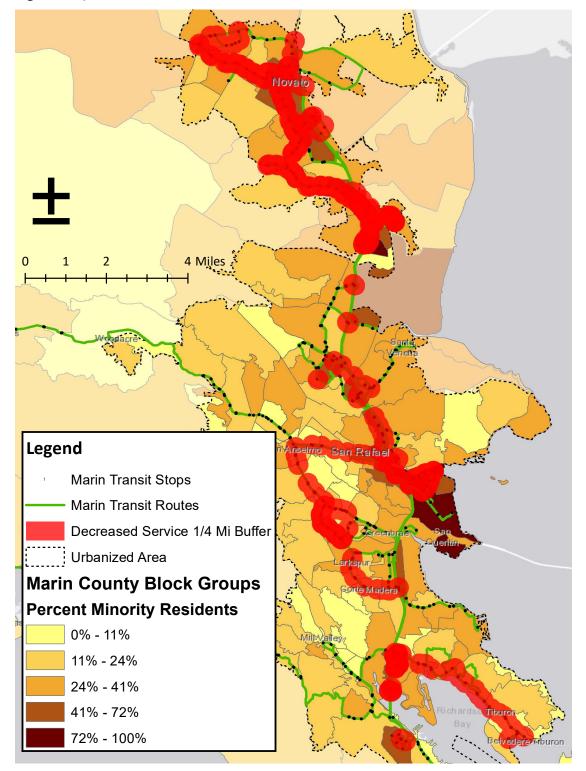


Figure 4: Systemwide Service Decreases



Other Analysis

These analyses are included for illustrative purposes only, to show the effects of the proposed service changes from multiple angles, and are not intended to fulfill FTA requirements under Title VI.

Route Level Analysis

The proposed service changes are intended to create operational efficiencies while minimizing the service level impacts on riders. To achieve this goal, for the most part, where routes were proposed for full cancellation, changes were made on other routes to provide substitute service. Routes proposed for segment cancellation were deconstructed, and the lost service was added to other routes. The table below shows how the routes proposed for service reduction or cancellation were replaced in other parts of the service change proposal.

	Proposed Reduction	Replacement / Alternative Service		
Route 22	Northbound service to Strawberry; Evening service	 Strawberry Service: Routes 17, 36, and proposed Route 219 Evening service (Marin City-Corte Madera): Routes 17 and 71 Evening service (Corte Madera-Larkspur): <i>No direct</i> <i>replacement / alternative</i> Evening service (San Rafael-San Anselmo): proposed Route 23, Route 228 		
Route 23x	Cancel Service	Consolidate with proposed Route 23		
Route 29	Service to the Canal; Service along Sir Francis Drake/College west of Bon Air Road	 Canal Service: Routes 35, 36, and proposed Route 23 Sir Francis Drake/College Service: Routes 22 and 228 		
Route 35	Service north of Northgate	 Route 49, proposed Route 71 (see note), and proposed Route 257 		
Route 219/219f	Service to the hills, service frequency	No direct replacement / alternative		
Route 251	Cancel Service	 Service to San Marin: proposed Route 49 Novato service south of San Marin: proposed Route 257 		
Route 645	Cancel Service	Proposed Route 35		
Route 651	Cancel Service	Proposed Routes 49 and 257		

Note: In addition to the 1,000 hours of service to be added to Route 71 in this proposal, an additional 9,000 annual hours were added to Route 71 in June of 2021.



All service decreases are being countered with service increases on other routes or alternative service on existing routes with two exceptions: Routes 22 and 219/219f. Table 5 below shows the route level assessment and estimated burden on minority and low-income populations. Routes 22 and 219/219f are both below the threshold for disparate impact and disproportionate burden.

	Total Hours (net)	Minority Burden (hours)	Low-Income Burden (hours)	Percent Minority Burden	Percent Low-Income Burden
Route 22	-1,705	-454	-241	27%	14%
Route 23/23x	839	144	142	17%	17%
Route 29 (see note)	285	-68	-67	-24%	-23%
Route 35	-5,628	-2,366	-1,074	42%	19%
Route 49	3,748	1,137	546	30%	15%
Route 71	2,346	891	455	38%	19%
Route 219/219f	-1,410	-321	-142	23%	10%
Route 251	-9,509	-3,681	-1,813	39%	19%
Route 257	5,600	2,144	1,153	38%	21%
Route 645	-689	-372	-201	54%	29%
Route 651	-622	-243	-122	39%	20%

Table 5: Route Level Service Assessment

Note: Although the route-wide change in service hours on Route 29 is net positive, the net change in hours for minority and low-income residents is negative.

Neighborhood Level Analysis

The net impact of the proposed service changes on individual riders and residents can best be understood at the neighborhood level.

The maps in this section show service increases in blue and decreases in red. Note that these colors only show the direction of the service change (increase/decrease), and do not indicate the scale of the proposed change. Service changes on multiple routes in the same location may layer on top of each other and appear more vivid, but the scale of this change may be less than a single change on a different route.



Tiburon/Strawberry/Marin City

Figure 5 below shows the proposed service increases and decreases in Tiburon, Strawberry, and Marin City. Service reductions on Route 219/219f, with no replacement service, mean that Tiburon will receive a net service reduction. Removing the Strawberry stops from Route 22 in the northbound direction, along with reducing late night service on Route 22, will mean that the Strawberry stops have a slight reduction in service (note that the majority of service to these stops occurs on Route 36, which will be unaffected by the proposed service change). Increased service on Route 71 will lead to a net service increase at the Highway 101 bus pads in this area (Tiburon Wye and Seminary Dr), along with the Marin City hub.

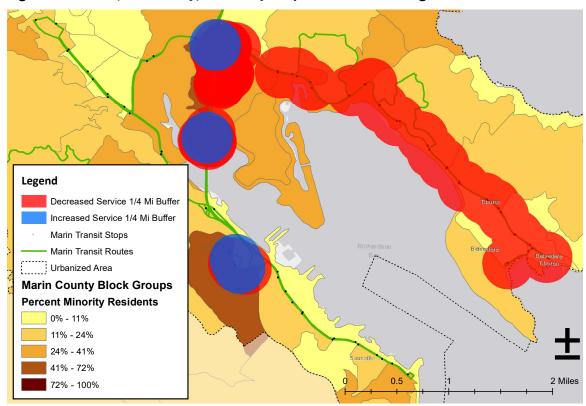


Figure 5: Tiburon/Strawberry/Marin City Proposed Service Changes



Corte Madera/Larkspur/Kentfield

Figure 6 below shows the proposed service increases and decreases in Corte Madera, Larkspur, and Kentfield. The route change on Route 29 will mean a reduction in service for the Kentfield/College of Marin loop during peak hours, but an increase in service along the corridor shown in blue into Corte Madera. Peak hour service to Kentfield/College of Marin will continue on Routes 22 and 228. The reduction in late night service on Route 22 will mean a reduction in service after 8:00 pm on weekdays in this area. Increased service on Route 71 will increase the frequency of service on the Highway 101 bus pads in this area (Lucky Dr and Tamalpais/Paradise Dr).

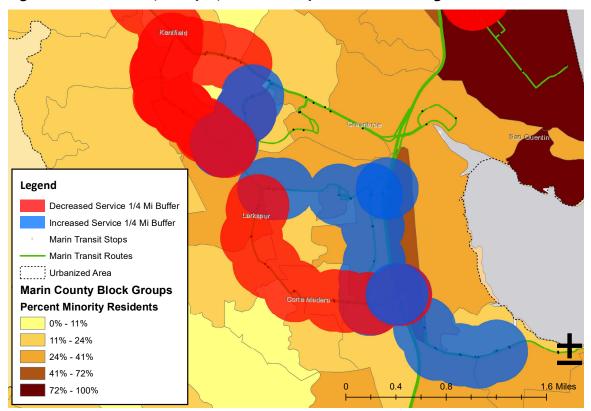


Figure 6: Corte Madera/Larkspur/Kentfield Proposed Service Changes



The Canal

Between the change on Route 29 and the cancellation of Route 645, the Canal will receive a decrease in service as part of the proposed service changes. However, the proposed cut is fairly small, and the Canal currently has the highest level of bus service of any neighborhood in Marin County. The proposed changes would represent a 5.8% reduction in weekday service to the Canal and no reduction in weekend service, as shown in Table 6 and Table 7 below. The reduction will occur primarily during peak hours only, when remaining service combines to offer roughly eight-minute headways in the neighborhood. All trips to and from the Canal will still be possible, although trips between the Canal and Novato or Marin General will now require a (timed) transfer at the San Rafael Transit Center. There will be no impact to the span of service to the Canal.

Route	Trips per Day (current)	Trips per Day (proposed)
23	17	25
23x	6	0
29	7	0
35	59	59
36	29	29
645	2	0
Total	120	113

Table 6: Weekday Bus Service in the Canal

Table 7: Weekend Bus Service in the Canal

Route	Trips per Day (current)	Trips per Day (proposed)
23	15	15
35	43	43
36	23	23
Total	81	81



Downtown San Rafael/San Anselmo/Ross/Manor

Figure 7 below shows the proposed service increases and decreases in Downtown San Rafael, San Anselmo, Ross, and Manor. Note that Santa Venetia and Terra Linda are discussed in the next section. The reduction in late night weekday service on Route 22 will mean a slight reduction in service along the Fourth St/Red Hill Ave corridor in San Rafael into San Anselmo, and then along Sir Francis Drake Blvd into Ross. Note that Routes 23 and 68 will continue to provide late night service along Fourth St/Red Hill Ave. The cancellation of Route 645 will mean a slight reduction in service along Lincoln Ave, although service along Lincoln Ave is primarily provided by Routes 35, 233, and 257. The extension of Route 23 will increase service into Manor, and increased service on Route 71 will increase service to the San Rafael Transit Center. Overall service at the San Rafael Transit Center will remain roughly the same, with the increase in midday service on Route 71 and decrease in late night service on Route 22 both being relatively minor.

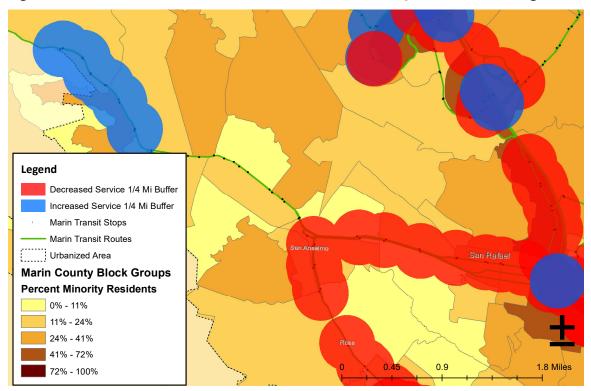


Figure 7: Downtown San Rafael/San Anselmo/Ross/Manor Proposed Service Changes



Santa Venetia/Terra Linda/Marinwood

Figure 8 below shows the proposed service increases and decreases in Santa Venetia, Terra Linda, and Marinwood. The cancellation of Route 645 will mean a slight reduction in service to the Marin Civic Center area; note that service to that neighborhood is primarily provided by Routes 35, 49, and 233, and the N San Pedro Rd bus pads will increase in service as part of Route 71's increase. Terra Linda will also see a slight reduction due to the cancellation of Route 645, but this reduction will be more than compensated for by the increase in service due to the rerouting of Route 35 into Terra Linda. The Terra Linda bus pads will also see an increase in service on Route 71. Bus pads in this area (Smith Ranch/Lucas Valley Rd and Marinwood) will see service switch from Route 35 to Route 71, which will entail a slight reduction in frequency.

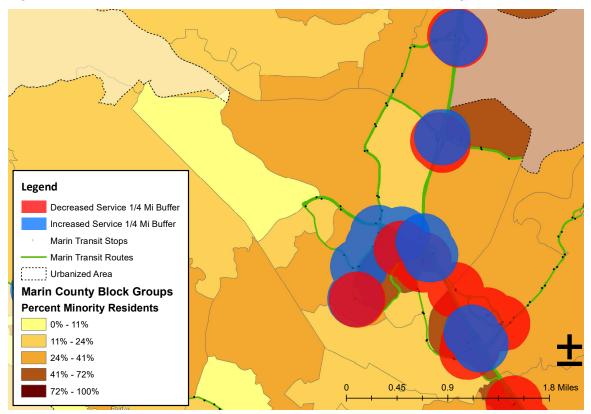


Figure 8: Santa Venetia/Terra Linda/St Vincent Proposed Service Changes



Novato

Figure 9 below shows the proposed service increases and decreases in Novato. The bus pads along Highway 101 will see a shift in service from Route 35 to Route 71, which will entail a slight reduction in frequency. The Hamilton neighborhood will see a slight decrease in service during weekday midday times due to the cancellation of Routes 251 and the re-routing of Route 257. Note that primary service to this neighborhood is on Route 49, which will remain unchanged. The Ignacio Blvd corridor from Hamilton to Indian Valley Campus, along with the Sunset Pkwy/S Novato Blvd corridor from Indian Valley Campus to Downtown Novato, will see a roughly even shift of service from Route 251 to the new added service and route extension on Route 257. There will be a slight decrease in total service along this corridor due to the cancellation of Route 651 and route consolidation along the Ignacio Blvd portion of the corridor.

Redwood Blvd between Grant Ave and the San Marin SMART station will see service shift from Routes 35 and 49 to Routes 71 and 257, which will entail a slight reduction in service; note that Route 71 terminates at Olive Ave (where Route 35 currently terminates as well). The San Marin neighborhood will see service shift from Routes 251 and 651 to Route 49, which will result in a net increase in service, especially along San Marin Dr east of San Carlos Way. Note that the stops on San Carlos Way will lose service and riders will now need to walk up to a half mile to access service along San Marin Dr. It should also be noted that riders traveling between San Marin and Vintage Oaks will now need to make a transfer in Downtown Novato or at the San Marin SMART station to complete this trip.



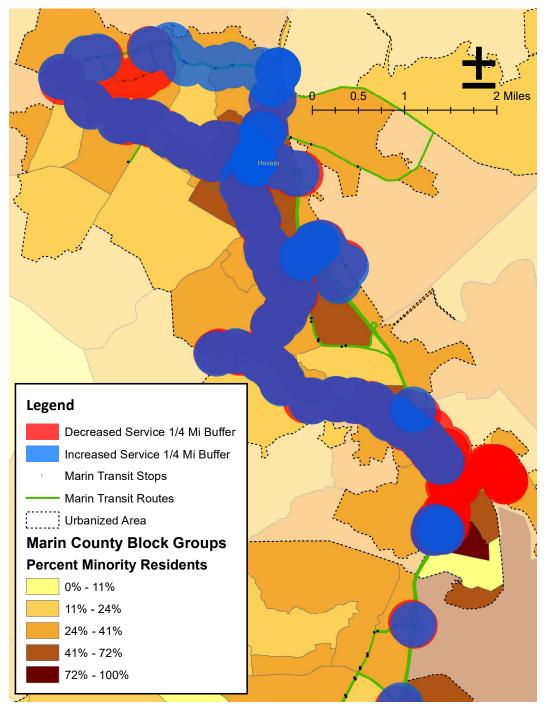


Figure 9: Novato Proposed Service Changes



Conclusion

As demonstrated above, the proposed service change package does not constitute a Disparate Impact on minority populations or a Disproportionate Burden on low-income populations under Title VI. District staff carefully formulated the service change proposal to ensure that, to the greatest extent possible, any service being cut from one route would be replaced by added service on another route. The data backs this up.

This analysis only looks at the demographic and service data to ensure that the impact of the proposed changes will not be disparately or disproportionately targeted towards minority or low-income populations. The public comments received as part of the public outreach process are not analyzed in this report, but can be found in Attachment C of the Board report. This report should be considered alongside the public comment received; it does not supersede it.